SD Times
SOFTWARE DEVELOPMENT
The Industry Newspaper for Software Development Managers

DECEMBER 15, 2002
ISSUE NO. 068

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CIGITAL PUTS EMPHASIS ON QUALITY OF CODE

Packaged solutions focus on process, augment company's consulting services

BY DAVID RUBINSTEIN

Riding what it sees as a growing emphasis on software reliability, Cigital Inc. is adding a packaged software dimension to its consulting operation that focuses on measuring quality during the engineering phase of development.

According to Karl Lewis, senior vice president of solutions, the company expects to have the first iteration of a quality dashboard available by the middle of next year, and plans to package up its best practices and other intellectual property by early 2004.

"There is a movement in the business space—out of the IT arena—that realizes software is more critical to the business process, so the move is from information management to business process management," Lewis said. Companies, he said, need to be able to scan IT requirements, design and code and then assess the impact on business of these vulnerabilities. Code analysis can help developers repair applications, he added, but Cigital's new offerings will help track the code reworking effort to drive

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IBM Extends WebSphere Beyond J2EE

App server v. 5.0 uses alphaWorks, pre-J2EE 1.4 security specifications

BY ALAN ZEICHICK

IBM Corp. has unveiled a significant upgrade to its WebSphere application server with a strong focus on XML-based Web services, including not only a new Web services gateway, but a new application framework and an accelerated SOAP message processing engine.

According to Danny Sabbah, vice president of IBM's application and integration middleware division, the new version of the application server, 5.0, which is compliant with J2EE 1.3 and contains early elements of the in-process J2EE 1.4 specification, seeks to go beyond Sun's Java 2 Enterprise Edition specifications. "People talk about J2EE levels without really understanding what they mean to customers, and without realizing that what a developer can play with and what a customer can deploy are two radically different things."

WebSphere 5.0 is a full implementation of Web services standards, says IBM's Sabbah.

For example, he said, "a simplistic implementation of J2EE 1.3 standards would not give you an understanding of how to deploy it in scalable clusters. You can do a simplistic implementation of J2EE 1.3, which we proved very early on, but our customers were asking for features around self-configuring, self-healing, self-optimization, real integrated security and failover, in combination with configuration and scalability. That takes some time [to build]."

In order to implement those features, said Sabbah, "you have to go beyond J2EE, period. You need Web services, XML and security-based standards, which are evolving independently of J2EE. What you will see with [WebSphere] 5.0 is a full-blown implementation of the Web services standards, as they currently exist today," and as in the J2EE 1.4 draft.

However, admitted Sabbah, "the realistic pace of adoption and deployment of those [Web services] standards is a heck of a lot slower than what vendors are talking about, to the point where a large majority of our customers are asking us to slow down because they can't consume [the new standards]."

Three new "standards" that Sabbah was specifically promoting as being included with WebSphere 5.0, and which go beyond the J2EE specifications, were WSIF, WSFL and Axis.

WSIF, or Web Services Invocation Framework, provides a Java API for invoking WSDL

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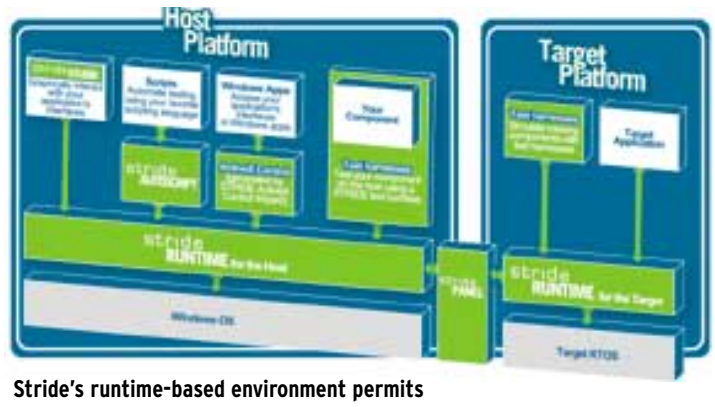
Embedded Tools Maker Hits Stride

S2 integration platform exposes interfaces

BY EDWARD J. CORREIA

Embedded development tools maker S2 Technologies Inc. has created Stride 1.0, a runtime-based integration and testing platform that it claims simplifies the amalgamation of system components and permits changes to deployed software without affecting existing functionality.



Stride's runtime-based environment permits feature changes in deployed devices, the company claims.

According to Dave Wenk, vice president of marketing at S2 (www.s2tec.com), this is accomplished by intercepting function calls through its runtime. "We allow you to break interface dependencies. Say you want to add voice recognition to a cell phone. You could build the components for the functionality you wanted and add them without having to rebuild the existing application."

Wenk claimed that IDEs are fine for building individual components of an embedded design, but become useless when it's time to integrate them. "Integration and testing takes about 40 percent of the [development] cycle. And no tools out there are focused on integration; they're all on coding and debugging," he asserted. When all the components in an embedded design are combined and integrated, Wenk said that applications can reach into millions of lines of code, at which point IDEs become ineffective. "We focus on program interfaces, which are far fewer," and much easier to manage, he said.

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Sun Pushes OpenOffice File Formats to OASIS

By standardization, hopes to enhance software interoperability

BY ALAN ZEICHICK

Sun Microsystems Inc. is playing with standards again—but this time with its OpenOffice open-source project, which competes against Microsoft Corp.'s Office. Sun has turned over the XML-based file format used in OpenOffice to the OASIS standards body, with the expectation that the organization will formally bless it.

The XML-based format, part of the OpenOffice 1.0 project (www.openoffice.org), is a Document Type Definition (DTD) designed for word-processing documents and spreadsheets, including those with embedded graphics or charts. The format also is used in Sun's commercial StarOffice 6.0 suite.

Danese Cooper, manager of Sun's Open Source Programs Office, said, "We think these file formats have huge potential to help the common user access his old documents in the future, and for file interchange to happen easily." Cooper said that Corel Corp. has committed to using the file formats, when ratified by OASIS, within its office software, and that Sun had also promised to modify OpenOffice and StarOffice to accommodate any changes in the formats OASIS might require during the standardization process. "We're not demanding that they use the OpenOffice format; we realize that there's a process involved," she stated.

What about Microsoft? A common file format doesn't do much good if it's ignored by the overwhelmingly dominant vendor. "We've warmly invited them to participate. They've declined, but we think that it's inevitable that they will have to. OpenOffice is gaining so much momentum around the world, it's almost an unstoppable force. As open standards start gaining currency, their whole lock-in game is going to go away. The days of an individual company doing the robber-baron thing with technology are going to be over."

But Simon Marks, product manager for Microsoft's Office XP, said that Sun is raising a nonissue, and that the various pieces of its forthcoming Office 11 productivity suite—including Word and Excel—will be able to interoperate with the OpenOffice XML-based file format, as long as an XML Schema Definition (XSD) exists to define the eventual standard.

Microsoft will have to join the effort, predicts Sun's Cooper.

Because of that, and because Microsoft does not see any benefit to locking in a particular file format, said Marks, the company has chosen to sit on the sidelines. "Sun did invite us to participate, and we responded with, 'Not at this time,'" he said, adding that as an OASIS member, Microsoft has the right to participate on any committee at any time, so that the company's decision to stand back has no permanent repercussions.

Instead of offering an XML DTD, said Marks, Microsoft is taking what he called a more extensible approach with its forthcoming Office 11 productivity suite: allowing the suite to read and write any XML document based on an XSD schema, rather than a single fixed document type. With Office 11, Microsoft will be introducing two XSDs of its own, called Word ML and Spreadsheet ML, which Marks said will provide an open and extensible foundation. "For example, any feature in Word, including macros, can be expressed in Word ML," he said, adding that using a fixed DTD, such as Sun is proposing, would make it difficult to add new features to the Office software.

Both of Office 11's new XSDs, Marks insisted, would be freely distributed, without royalties. There won't be any compatibility issues, he claimed, saying that any software capable of reading and understanding XSDs would be able to read and write Office 11 documents, or at least those written to XML files. For the immediate future, he admitted, most Office 11 users would continue to use the .DOC and .XLS formats to maintain backward compatibility with Office 2000 and Office XP.

Marks said that rather than working through OASIS, Microsoft wanted to retain ownership of the core Office 11 XSDs. However, he stressed that customers or third parties could modify the XSDs and therefore tailor Office 11's XML capabilities, or incorporate elements of industry schemas such as XBRL, the Extensible Business Reporting Language, or the health-care industry's HL7. ■

Vitria: End of the Road for 'EAI'

BY DAVID RUBINSTEIN

"The EAI 'thing' is dead."

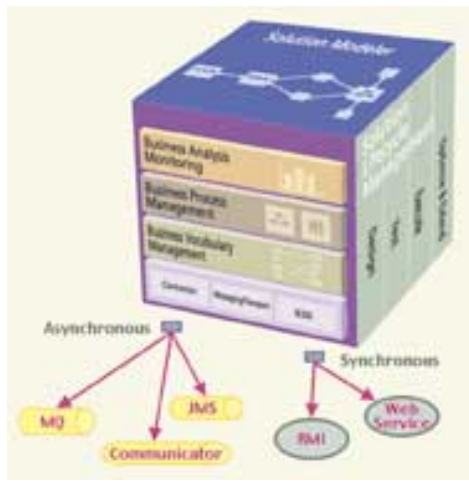
That would seem to be an unlikely statement to hear from an executive at Vitria Technology Inc., considered a market leader in that space. But Ted Murguia said the company firmly believes it to be true.

"If you just say, 'I have a bus for moving data,' no one would buy that anymore," said Murguia, vice president of product marketing, describing what enterprise application integration has become—a series of connections between data silos that do not take such things as dependencies and workflow into account. "Doing EAI without some sort of context is a waste of money. It has evolved beyond moving data back and forth. It's about managing business processes that cross data and applications and people."

With that in mind, Vitria (www.vitria.com) has released version 4 of its BusinessWare integration platform that takes a component-based, model-driven, transport-independent approach to integration. Also, the company has released several specialized integration solutions as part of a new vertical-market strategy.

BusinessWare 4 comes with a UML-based business process modeling tool that allows business people within an organization to use the same tool as developers. When the process model gets expanded down to IT-level details, Murguia claimed, all the links are preserved. "In the past, IT did what was possible, not what the business required. Links were broken because the two sides were using different tools." Vitria, Murguia said, has put its best practices into the platform to unify versioning, testing mechanisms and measurement, all with the goal of improving the development process. "The opportunity for cost reduction is in exception handling. Lots of dollars can be saved today," he said.

With the new platform release, Vitria has created an architecture "so every part of the integration solution—adapters, data models, subprocesses, objects—can be componentized to enable reuse more easily," he said. The platform ships with an Oracle database as its component repository, Murguia added.



Vitria's platform extends beyond data movement to include process and vocabulary management.

Murguia explained that many companies might have 10 or 12 different purchasing processes because each is developed independently of the other. "If you encapsulate the purchase process with a call into a component, you can reuse it and control it. If you want to change it, you only have to change it in one place. Also, you can make these appear like Web services, a [Java] bean or a task in an MQ environment."

BusinessWare 4 ships with Vitria's own publish-and-subscribe integration broker, but Murguia said customers can use another of their choosing. "We found our best-selling connector was into MQ Series," he said. MQ also allows customers to work back into their IBM mainframes in an integrated way, he added.

Another new feature of the platform is a business vocabulary management tool that gets everyone working with business documents and data fields speaking the same language. "It takes a big chunk of time to manage business vocabularies," Murguia said. It takes two or three full-time people to manage changes in EDI now, for example." Murguia said Vitria will offer tools to capture vocabularies and map them into the environment for easier maintenance. "Syntactic validation and semantic validation, as well as the validation of the value of variables, is critical. If there's an OB-GYN claim and gender equals male, there's probably a problem," he laughed.

The company has delivered what it calls Vitria Collaborative Applications (VCAs) for vertical markets that include a business vocabulary tool, reporting capability and legislative processes built in. Health care, financial markets and retail banking are the first to be targeted, Murguia said.

"The direction for Vitria is to pick off specific business processes to solve problems. Companies face legislative requirements with a deadline, and face huge penalties if they don't make it."

BusinessWare 4, which runs on Windows and Unix, is sold extensively through consultant partners. A typical server installation runs between $300,000 and $500,000, Murguia said, which includes the platform license, backup copies, adapters and connectors. ■

Software Development Times (ISSN #1528-1965, USPS #001-9625) is published 24 times a year by BZ Media LLC, 2 East Main Street, Oyster Bay, NY 11771. Periodicals postage paid at Oyster Bay, NY and additional offices. POSTMASTER: Send address changes to SD Times, 2 East Main Street, Oyster Bay, NY 11771. SD Times is a registered trademark of BZ Media LLC.

News Briefs

COMPANIES

The **Java Community Process** has held its 2002 elections, designed to fill three-year seats on its executive committees. On the J2SE/J2EE Executive Committee, **Iona Technologies Inc.** and **Cisco Systems Inc.** were both re-elected to a second term. On the J2ME Executive Committee, Cisco and **Sony Ericsson Mobile Communications AB** were re-elected. Only 28 percent of JCP members voted in the election, compared with 22 percent in the 2001 elections.

PRODUCTS

Microsoft Corp. is distributing the second release candidate for **Windows .NET Server 2003**, its replacement for Windows 2000 Server, and has stated that the final code will be available in April 2003. At the same time, the company will ship the second release of Visual Studio .NET; widely referred to by the code name "Everett," the new IDE will be formally named **Visual Studio .NET 2003** . . . OpenLink Software Inc. now has a version of its **Single-Tier ODBC Adapter** for Sybase's **Adaptive Server Enterprise** running on Mac OS X . . . MKS Inc. says that its source-configuration management software, **Integrity Solution**, is now compatible with IBM's WebSphere Development Studio 4.0 for the iSeries. The company also has updated its **MKS Toolkit**, a set of Unix-like utilities for Windows. Version 8.5, priced at $359 per seat, includes SNMP and Secure Shell tools, an X11/Motif development environment, and better support for Windows NT services and domains. In addition, version 2.0 of MKS' **AlertCentre** monitoring system for Windows now has application wizards for Exchange Server, IIS and SQL Server, and can also watch SNMP devices and UDP ports . . . IBM Corp. has posted two new tools to its alphaWorks developer site. **XML Wrapper Generator** is a graphical tool that automates integration of XML data sources into a DB2 database using an XML Wrapper. **WSDL Explorer** is a Web application that displays WSDL files, generates views of operations, and allows invocation of operations and viewing of sample message flow . . . Version 4.0 of SyTech Inc.'s **XLReporter** report generator automates Web publishing of Microsoft's Excel spreadsheet reports in XML format. The company also has a new product, **XWeb Director**, that generates custom home pages that are automatically hyperlinked to an unstructured collection of HTML pages . . . Excelsior LLC is updating **JET**, a Java compiler than creates Win32 executables, to support J2SE 1.4.1. The new JET 3.0 also has tools for compiling Java apps into NT services, produces smaller executables and supports customer class loaders . . . Metrowerks Inc. has a version of its **CodeWarrior** IDE for building C/C++ applications for Symbian OS version 7-based devices. The tool ships with an SDK for the Sony Ericsson P800 mobile phone, and costs $399 per license . . . Raining Data Corp. has released **D3 MQSeries**, an implementation of IBM's WebSphere MQ message-queuing middleware APIs for Raining Data's D3 database applications deployed on AIX. The APIs give the database direct access to IBM's middleware functions using Pick BASIC. The company also has updated **FlashConnect**, its Web-enabling tool for its D3 database applications; version 3.1 offers streamlined APIs for extracting data from the database . . . Rage Software Inc. has updated its **WebDesign** authoring package for the Macintosh to incorporate a PHP editor. WebDesign 1.8, which costs $30 per developer, also now works with Mac OS X 10.2 . . . Merant International Ltd. has updated its **Collage** Web content management server to work with BEA's WebLogic and Oracle's 9iAS app servers. Version 3.1 also can run on Windows XP, and is priced at $35,000 per server . . . TheKompany.com Inc. has updated **KDE Studio Gold**, its KDE-based code editor. Version 3.3 adds Java capabilities to the IDE, which previously was for C++ only . . . NetManage Inc. has released **Rumba Developer Edition**, a subscription-based service focused on its Rumba host integration software. Developer Edition, priced at $7,500 per developer seat for a 12-month subscription, provides a complete set of Rumba software tools, sample code and a resource Web site . . . Sybase Inc. subsidiary iAnywhere Solutions is offering a native .NET data provider for its **SQL Anywhere Studio** development suite. The data provider supplies ▸ continued on page 8

OMG Shows Off Tech Conference

With vendors on hand, board approves modeling, CORBA specifications

BY DAVID RUBINSTEIN

WASHINGTON, D.C. — More than 15 vendors and 350 attendees turned out for Object Management Group Inc.'s first combined conference and trade show, Integrate 2002, held here late last month. Meanwhile, the technical conference panels and task forces advanced a number of specifications toward standardization, and the new date for final adoption of UML 2.0 has been pushed back yet again, this time until March 2003.

The event marked the first time OMG offered an exhibit floor along with its technical conference. "We've wanted to do this for a while, and what changed is the economy," said Richard Soley, OMG's chairman and CEO. "Putting it together at the same time makes sense."

During the technical sessions, OMG's board of directors voted to approve as specifications a Lightweight Logging Service and the Human-Usable Textual Notation (HUTN). According to Jon Siegel, OMG's vice president of technology transfer, the lightweight service allows events to be logged on a real-time, embedded-systems network. The HUTN, he explained, marks the third representation of UML after diagrams and XMI. Whereas XMI is text-based in an XML format, to be used by tools, HUTN is designed to be parsed and presented to users in an editable fashion.

The economy dictated putting a show with the conference, says OMG's Soley.

RFPs were accepted for a metamodel to allow manufacturers to standardize their object life cycles; for a lightweight CORBA Component Model (CCM); and for reliable ordered multicast, which lets senders know their multicasts got through to all recipients, and that the message sent first arrives before the second message, Siegel explained. The lightweight CCM allows for secure, transactional and persistent connections to a repository of resources, such as components, memory or CPU cycles. This creates a peer network that allows application deployment to real-time, lighter-weight systems to occur adaptively, as a runtime concept, rather than as a coding concept, Siegel added.

At the conference, no action was taken on the UML Object Constraint Language, to keep it in sync with the UML 2.0 and MOF 2.0 releases, Siegel said, and the definition of a UML profile for business processes was postponed until the group's Jan. 27 meeting in Burlingame, Calif. ■

NetEdge Adds Web Services to VB6, Office

Company's first product gives pre-.NET apps ADO, OLE DB

BY ALAN ZEICHICK

NetEdge Software Inc., launched in 2001, has delivered its first product, Web Services Enabler. In beta since last May, the Enabler provides pre-.NET applications with an OLE DB or ADO-based interface for accessing XML-based Web services and other SOAP messages.

"[Enabler] allows legacy Windows applications, like anything built with Office 97 or Office 2000 Visual Basic 6 or Visual C++ 6, to consume Web services very quickly and very easily," said Jay Pitzer, vice president of sales and marketing at NetEdge (www.netedgesoftware.com).

Pitzer contrasted Web Services Enabler with Microsoft's SOAP Toolkit, which includes a SOAP listener and a COM interface. NetEdge's approach is to treat Web services using a database-access paradigm. "We wanted to map, at a very low level, C++ classes onto ADO [Microsoft's ActiveX Data Objects] or OLE DB [Object Linking and Embedded Database] classes. Rather than use COM, we took a different approach: We're going to use XPath, and XSL, and extend those transforms and build our own ATL [Active Template Library] functions onto that. That gives you a really pure type of approach."

The benefit, he claimed, is to allow developers "to just point and click and consume a Web service, without even having to write anything or change any of the code on the client—as you would if you used [Microsoft's] SOAP toolkit, which requires you to rewrite a lot of your code."

The first product, which shipped in early December, was designed explicitly for Visual Basic developers. NetEdge will shortly introduce a package for Microsoft's Excel programmers, said Pitzer, explaining that this product will allow spreadsheets to access external data, "and point directly to a WSDL file via its URL, and the data will just populate into the cell." The company also is planning a version for server-side Active Server Pages developers.

Pitzer also claimed that NetEdge's Web Services Enabler products simplify integration of Windows applications with non-.NET Web services servers, such as those using the Apache Software Foundation's Axis toolkit. ".NET has some problems with non-Microsoft Web services," he said, due to different interpretations of the standards. "Microsoft has what they believe is the standard, but it's not the same as everyone else's," he continued.

"If I compared your WSDL file with my WSDL file, they're not exactly the same. So, what we have built into our product is a runtime interface that can handle a transform on-the-fly. Say you had a Web service, and it failed; it might have been a small error in the WSDL file, or the SOAP envelope. We allow you to add a transform very quickly to correct the error and access the Web service successfully."

Web Services Enabler sells for $1,200 per developer seat for the Visual Basic 6 or Microsoft Office client version, with no runtime royalties. ■

Codagen Puts C++, Diagram Support in Architect 3.0

BY DAVID RUBINSTEIN

Codagen Technologies Corp. is expected this week to release Codagen Architect 3.0, its code generation, conversion and synchronization tool with new integration with TogetherSoft's ControlCenter model-based development environment.

Codagen Architect, which already had been integrated with Rational's Rose UML modeling tool and Microsoft's Visio diagramming software, now addresses what Codagen sales VP Allan Benchetrit called the growing installed base of TogetherSoft users. In November, Borland Software Corp. announced that it would be acquiring TogetherSoft for $185 million.

Also new to version 3.0 is the ability to generate code in C++; before, it handled all essential object-oriented languages, Benchetrit said. Another new feature is support for dynamic UML diagrams. With earlier versions, developers could generate 70 percent of the application code based on Class diagrams; now, Use Case, Statechart and Activity diagram support is added, bringing to 90 percent the amount of code that can be generated, according to Benchetrit.

But simply calling Codagen Architect a code generator does not do it justice, insisted Benchetrit. "Code generators take a black-box approach. You must use their modeling tool or generate code to a specific framework, such as J2EE or .NET," he said. "We offer a white-box solution approach; we can generate code in any language for J2EE or .NET.

UML models can be extended with profiles that allow users to tailor the modeling environment to the company's own IT environment before generating code, Benchetrit explained.

The company also has added templates into version 3.0, addressing Struts, JDO, JMS and EJBs for Java developers, and ASP.NET and ADO.NET for Microsoft's .NET developers. "That should cover 80 percent of situations our customers are in today," CEO Michel Brassard said.

Codagen (www.codagen.com) has gone from a node-locked pricing model to a floating license model; one version of Architect 3.0, along with five copies of Codagen Developer (a scaled-down version targeting developers who do not need many of the features of UML), sells for around $8,000, Benchetrit said. Individual licenses for the Developer version are $450 each. ■

PARASOFT RELEASES NEW DATABASE TESTING TOOL

BY CHRISTINA M. PURPI

Parasoft Corp. has added a new testing tool to its lineup—this time to detect database problems throughout the application development life cycle.

DataRecon is a tool for anyone who has applications that interact with a database, claimed Gary Brunell, vice president of professional services at Parasoft (www.parasoft.com), as it has functionality to help those who own the data, those who own the data warehouse, and those who are creating the interactions with that data.

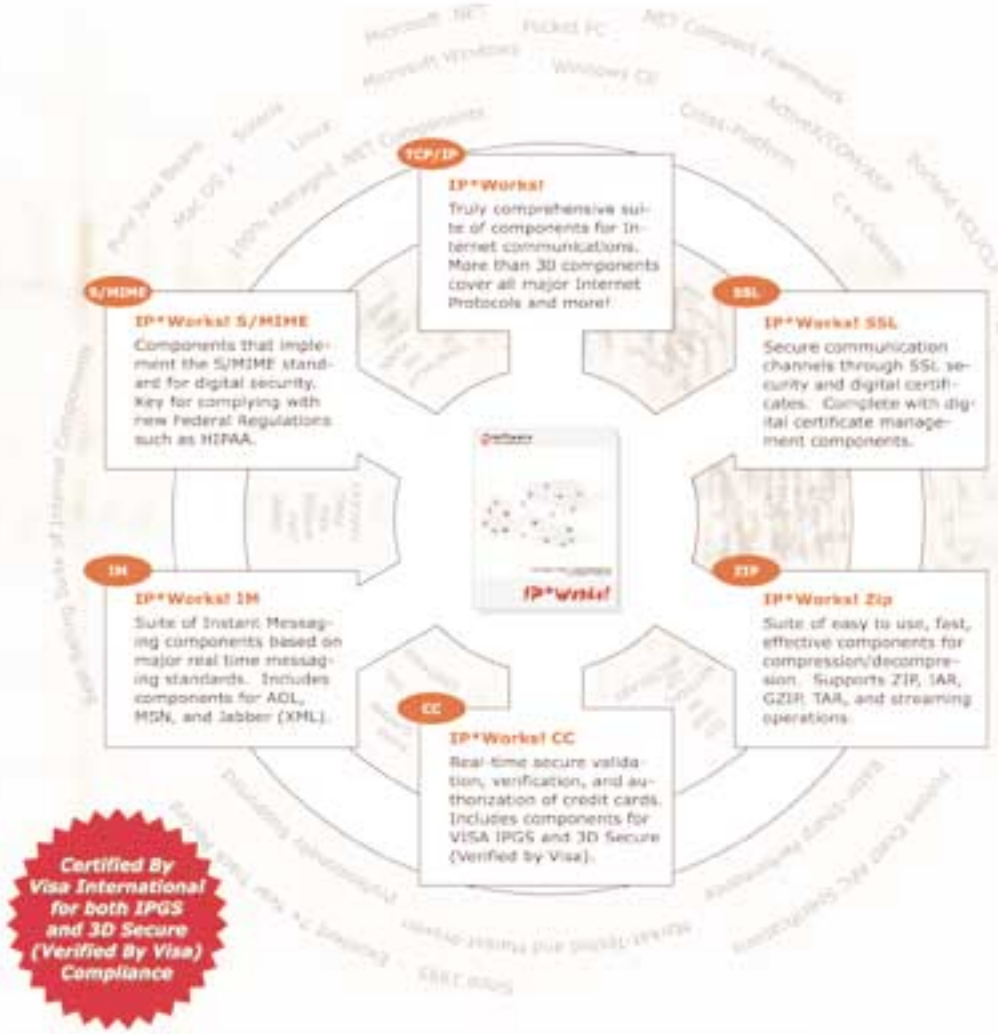
According to Brunell, DataRecon examines SQL statements to enforce naming conventions; perform stress, regression and load testing; statistically observe what's happening in the database; and search for data pollution or bad data that can cause the database to hang.

What's unique about DataRecon, claimed Brunell is that it works with all major relational databases, even with the uncommon legacy databases.

DataRecon brings the notion of prototyping, performance, and tuning and testing an application's database transactions earlier into the development cycle. This also allows developers to choose whether to fix a problem in the application or in the database itself, explained Brunell.

The benefit, according to Brunell, is that DataRecon takes the database administrator out of the critical path of development. "Developers can continue working on creating things and tuning things themselves before even needing the DBA. It reduces the burden from meaningless tasks, so I, as a manager, can continue to test and look for other things, such as the regression differences from release to release."

Currently available for Linux and Windows, DataRecon starts at $3,495 for a single-user license. ■



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Starbase Adds Decision Support to StarTeam

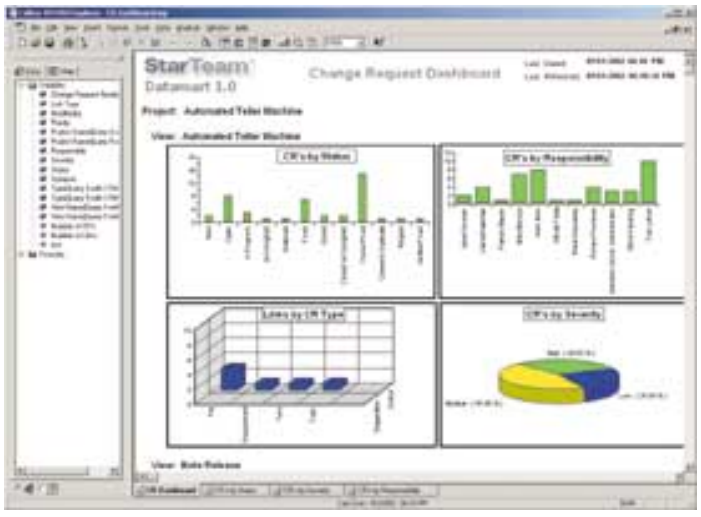
New Datamart provides repository, reporting across multiple projects

BY ALAN ZEICHICK

Addressing a limitation of its StarTeam configuration management system, which only provided developers and managers with views into individual projects, Starbase Corp. has released an add-in that can extract and produce enterprise-level reports. The new StarTeam Datamart, which the company refers to as a decision support system, provides a centralized repository and reporting engine that can span multiple StarTeam projects.

The issue is that the StarTeam project databases are normalized, which makes them faster and more efficient, but also obfuscates the structure, thus rendering them hard to generate reports from, said Mike Gould, Western regional manager of Starbase's solutions group.

"So, we wrote a two-piece product which does an extraction and builds a separate transactional-type database. These are built into [Microsoft's] Access or SQL Server. You can look at transactions across the whole database, such as change requests or files. You can build a whole history of data that we extract into a non-normalized database with straight names" that are easy to query, Gould said. "We do all the joins for you, so you can attack that database with any [reporting] tool that you'd like."



StarTeam Datamart offers management-level reporting, and can link those reports to CaliberRM Pro's data mart server.

The second half of StarTeam Datamart, said Gould, is built-in partnership with Business Objects Inc., a data analytics company. "We create a universe of Business Objects out of that database. You can then use our Caliber Explorer tool to create Business Object-type of reporting, which is very powerful."

The types of applications StarTeam Datamart would be used for, said Gould, are those for top IT management to gain a broad idea of how quickly software change requests were being addressed across the entire software development department.

Unfortunately, using StarTeam alone, managers were limited to viewing data one project at a time, which made it difficult to gain a broader understanding of the state of the company's software development workload or efficiency. "Most people want to know the full gamut of the full configuration, by all projects. Within StarTeam [itself], I can get a similar report, but it's only within my project; Datamart brings things up a level, and lets you look at the whole enterprise."

Datamart is addressing a pent-up demand for enterprise-level reporting, claimed Gould: "The StarTeam tool itself has had many requests for improved reporting capabilities, so it's been tremendously well received."

StarTeam Datamart does not interact with other vendors' SCM systems, and Gould said that there are no plans to add such interoperability to the product. However, he said, Business Objects can be used to bridge multiple applications. Plus, StarTeam Datamart can interact with a similar data mart that Starbase (www.starbase.com) offers for its CaliberRM Pro requirements-management system.

Currently, all of Starbase's early deployments of StarTeam Datamart are running on Access or SQL Server. However, said Gould, "we don't have any [deployments] yet, but it will also run with Oracle." The software is priced at $12,000, and includes three days of onsite consulting from Starbase. ■

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News Briefs

MORE PRODUCTS

◂ continued from page 4

interoperability directly to .NET servers, and does not require OLE DB or ODBC bridges . . . Phaos Technology Corp. has released **Phaos Liberty Toolkit**, a set of Java APIs that implement secure XML messaging based on the Liberty Alliance specifications. The toolkit costs $10,000 per developer license, with a runtime license of $15,000 per server processor . . . Red Bend Software has released **vBuild 1.0 for InstallShield Professional**, a plug-in for InstallShield Software Corp.'s installer engine that compresses update files by 15 percent to 40 percent . . . Version 5.2 of Eiffel Software Inc.'s **EiffelStudio** compiler and IDE for Linux includes a faster compiler, redesigned GUI builder and improvements to its debugger . . . Encirq Corp. has released **Encirq 2e Suite**, a database engine and tool set for building application-specific databases for embedded devices. According to the company, the tools include a full-featured SQL engine, prototyping tool for creating data management components, an Ada-like programming language, and a set of libraries and predeveloped components for commonly used applications . . . Open-source developer Robert Roebling has released the first beta of **wxEmbedded** (www.wxwindows.org/embedded.htm), a scaled-down version of the wxWindows cross-platform GUI libraries created in 1992 by independent developer Julian Smart. The goal of the free GUI library, according to Roebling, is to enable developers to build applications for Linux- and Windows CE-based handheld computers from a single codebase . . . AdventNet Inc.'s **ManageEngine Suite 5.0** now supports the Oracle9i application server. ManageEngine provides JMX (Java Management Extensions)-based monitoring of J2EE applications and app servers . . . LynuxWorks Inc. has delivered its **LynxOS** Linux-compatible real-time operating system for embedded processors using the ARMv4T and ARMv5TE architectures . . . Axceleon Inc. has updated its **EnFuzion** grid-enablement software to work with Windows XP workstations. Previously, the software worked with Linux, Unix and Windows NT/2000 . . . Flashline Inc. has released an adapter that allows its **Component Manager Enterprise Edition** to be compatible with IBM's WebSphere Studio development tools . . . SCO Group, a division of Caldera International Inc., has released its first Linux distribution based on the UnitedLinux consortium's common platform. **SCO Linux 4.0** is priced at $599 per server . . . Macromedia Inc.'s **Director MX** multimedia authoring system for Mac OS X and Windows now deploys Shockwave files direct to DVD, and has tighter integration with other Macromedia tools. Director MX is the successor to Director 8.5, and is priced at $1,199 per seat.

PEOPLE

SEIBT

Richard Seibt is the new CEO of SuSE Linux AG, as well as the chairman of its executive board. Seibt, formerly with IBM Corp., replaces **Gerhard Burtscher**, a turn-around specialist who is going to another, unnamed, company . . . Sleepycat Software Inc., maker of the Berkeley DB embedded database, has hired **David Segleau** as VP of engineering. Segleau, formerly QA director with Visto Corp., succeeds co-founder **Keith Bostic**, who will now become Sleepycat's VP of product development.

STANDARDS

The XML for Analysis Council, a vendor consortium led by Hyperion Solutions Corp., Microsoft Corp. and SAS Institute Inc., has released version 1.1 of its **XMLA** spec. The update (www.xmla.org) provides a common API for accessing multidimensional databases via Web services . . . Sun Microsystems Inc.'s Java Community Process has approved **JSR-118, Mobile Information Device Profile 2.0**. This specification extends the original MIDP spec to focus on high-volume wireless phones and enable e-commerce over wireless devices . . . The **Liberty Alliance**, a vendor consortium focused on federated identity management led by Sun Microsystems Inc., has placed version 1.1 of its draft specification for public review. This version offers only minor updates and clarifications to the Liberty 1.0 spec, released in July. ▮

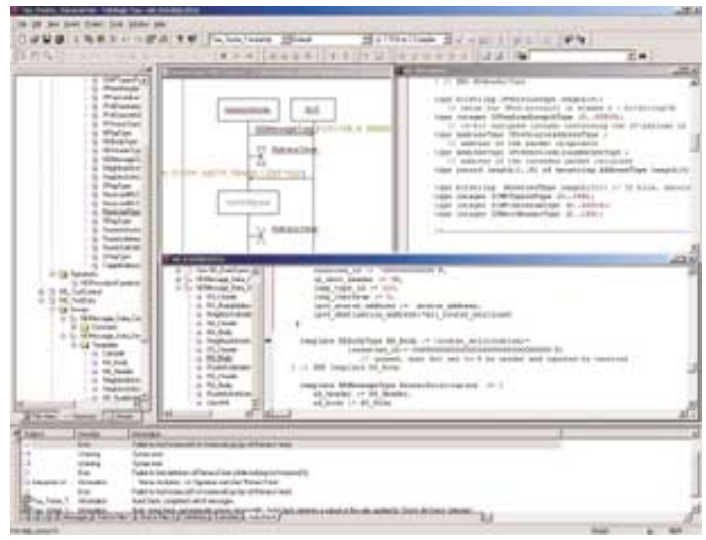
Telelogic's Tau Tester Supports TTCN-3

BY CHRISTINA M. PURPI

The second version of Telelogic AB's automated software testing tool, Tau Tester, provides a migration path to the standards-based TTCN-3 scripting language. Tau Tester 2.0 also supports procedure-based communication and includes a UML Sequence diagram editor and deadlock detection.

Matthew Graney, director of technical marketing at Telelogic (www.telelogic.com), claimed that the most important feature in this release is its understanding of version 3 of the Test and Configuration Control Notation scripting language, the standard developed by the European Telecommunications Institute. Tau Tester 2.0 also can import tests from TTCN-2 to TTCN-3. "This is important for telecom customers because there are a number of test suites available for them already, off the shelf, published in TTCN-2; standards bodies also publish tech specs and publish test suites in TTCN-2. Now they can move over with the help of Tau Tester."

The new release also can test component interfaces using such procedure-based communication methods as CORBA, RPC and SOAP, Graney said. Also, tests can be done on systems using synchronous communications, such as the Session Initiation Protocol (SIP) and IPv6, he added. Tau Tester 1.0 only tested message interfaces. "We're still functional testing, as we're not looking at the behavior of the system internally, just looking at how it performs from the outside."



Test execution results can be presented either graphically or as a textual log.

Tests can now be remotely controlled, downloaded, run and monitored from the Tau Tester desktop. Internationalization, with Tau Tester's new support of double-byte character sets, opens up Asian markets for the company, according to Graney.

The new deadlock detection feature senses when there's been a period of inactivity, to make sure a test can continue. A TTCN-to-XML generator, also new to this release, can generate test documents in XML, so they can be used by other tools that can import XML, according to Graney.

In addition, because Tau Tester is integrated into Telelogic's recently released Tau-Generation 2 family of products, composed of Tau Architect and Tau Developer, the UML Sequence diagram editor can be used within Tau Tester. "That's the advantage of having a family of products all using the same interface. The editor is the same editor that we use for Architect and Developer," explained Graney.

Tau Tester 2.0 is currently available and carries the same price as version 1.0, at $6,995 per test case writer. ▮

Merant Ties PVCS Pro to Eclipse, WebSphere

Delivers versioning, change management within developer tools

BY DAVID RUBINSTEIN

Looking to "provide tools where people are used to working," Merant International Inc. has released PVCS Professional 7.5 with tighter integration for IBM's WebSphere Studio Workbench and the Eclipse development framework.

Other improvements include added support for Lightweight Directory Access Protocol (LDAP), for enhanced user authentication, and for Microsoft's Visual SourceSafe, according to Patrick Merritt, senior product marketing manager at Merant (www.merant.com).

"Other SCM solutions focus on development but not managing projects," said James Rogers, vice president of product marketing. "We focus on versions of customizations to ERP systems and the like. People want to leverage their existing infrastructures."

PVCS Professional comprises PVCS Version Manager 7.5, PVCS Tracker 7.5 for capturing and managing changes, and PVCS Configuration Builder 7.5 for ensuring that applications can be reused and will be reliable. One of the advantages of Merant's solution, Rogers claimed, is that it easily integrates with many third-party tools, allowing development teams to continue developing in their preferred work environments.

The new version, which sells for $1,399 per developer, allows code changes to be traced across an environment via a browser client, improving scalability and performance over a wide-area network, Merritt said. The SourceSafe integration allows Visual Studio .NET developers to control versions and manage changes within that IDE, he added. Merant's TracerLink, which ties change requests to versioned files, also now can be accessed via the Web client. ▮

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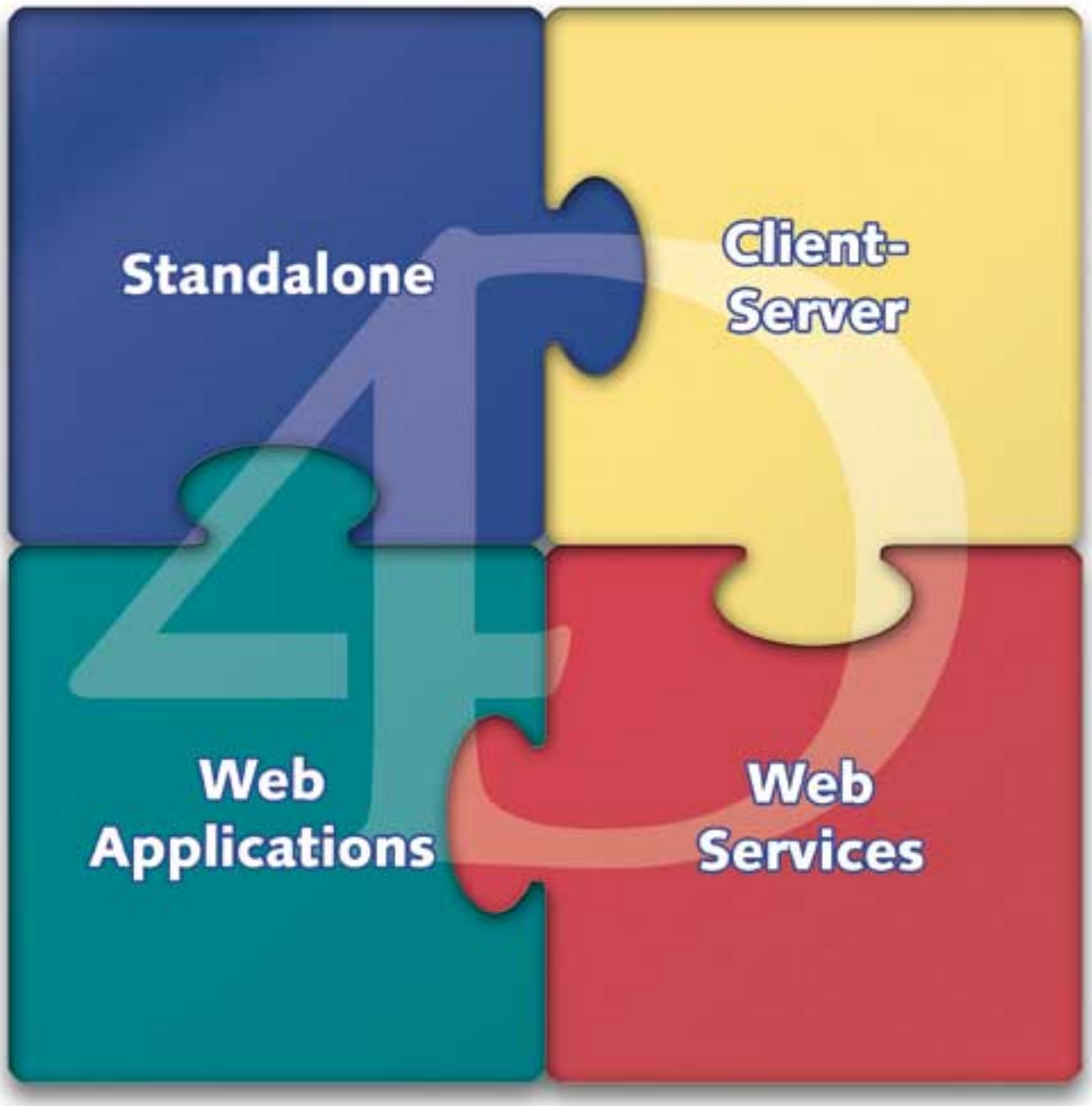

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RootCause Tracing Tool Gets Tight With J2EE

BY DAVID RUBINSTEIN

OC Systems Inc. has released version 2.0 of its RootCause application performance tracing tool to incorporate full support for the J2EE 1.3 specification from Sun Microsystems Inc.'s Java Community Process. Previously, developers needing to debug applications that used the J2EE APIs had to purchase an add-on product, according to the company.

Another major enhancement to the product, the company announced, is the ability to trace code across the Java Native Interface (JNI) so that Java applications that use C++ code or APIs can be monitored for errors in the same tool.

Developers using 2.0 now have the ability to define traces by specifying acceptable performance levels, and then refining the trace. RootCause 2.0, which runs on Solaris and Windows, also has an improved trace display that allows developers to gather as much data as they require while the application is running and move straight to an exception, the company (www.ocsystems.com) said. This way, an analysis of the problem can be done at runtime, without forcing IT to try to reproduce the problem in a test environment. RootCause 2.0 costs $2,995 per developer. ▮

SMARTDRAW HELPS DEVELOPERS GET THE PICTURE

BY DAVID RUBINSTEIN

A picture is worth a thousand words, or so the expression goes. If that indeed is the case, then the diagramming tool from SmartDraw.com can save 50 million words during the discussions that surround the development of software and other design projects.

With more than 50,000 design symbols organized into 11 principal connections—software design, electrical engineering, mechanical engineering, science and math, organizational and flowcharts, and maps and geography among them—SmartDraw can be used as a simple drawing tool to represent complex ideas in a visual way, according to company founder and CEO Paul Stannard.

SmartDraw is not meant to act as a replacement for software modeling tools, he emphasized. Stannard explained that you might use SmartDraw during the early, iterative stage of project planning, and then when the diagrams are agreed upon, recreate them in a UML modeling tool that can generate the underlying code. SmartDraw includes the symbols necessary to create all nine diagram types defined in the UML 1.0 specification, he said.

Along with the diagramming software, which is available at www.smartdraw.com, the site offers learning centers and tutorials to help users implement a diagram.

Three versions of SmartDraw, with different symbol libraries, sell for between $69 and $198. ▮

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Scale Smoothly with a Super-Peer Architecture	○	○	✔
Optimize business processes by exploiting data-parallelism	○	○	✔
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CIGITAL

◂ continued from page 1

improvements in the development process. "That's the fundamental that's been missing," he claimed.

Having secured $4 million in venture capital in August, Cigital (www.cigital.com) plans to release tools that address what Lewis called the "speed to quality issue."

"There's a trade-off of time, budget and quality" in software development today, Lewis maintained. "It's possible to measure two of those, but not the third. We're going to show how to measure that." The development quality dashboard will be designed to help the project management offices make better decisions before the testing phase, and how to implement what is learned during the code revision phase into the development process.

While acknowledging that other business process management tools and requirements management tools exist in the market, Lewis said Cigital's dashboard will complement those tools by analyzing requirements and code documents for vulnerabilities around security and reliability of the artifacts themselves. "There are many metrics that people aren't getting value out of," he said. "Everyone modifies their process, but they don't have a process improvement loop to deal with modifications." The goal, Lewis said, is to reduce the amount of reworking code goes through after it is thought to be completed.

Lewis said the company expects to get a bounce from the renewed emphasis on quality being trumpeted by Microsoft chief software architect Bill Gates and by a group called the Sustainable Computing Consortium, on whose board sits Cigital CEO Jeffery Payne. The group, hosted by Carnegie Mellon University, seeks to drive system reliability and security.

"Software can't be accepted if it's going to fail," Lewis said. "There are too many revenue loss and liability issues. Software that didn't work used to be an inconvenience. Now it's a loss." ▮

WEBSPHERE

◂ continued from page 1

services without using SOAP or stubs. The API, developed by IBM, is at www.alphaworks.ibm.com/tech/wsif.

WSFL, or Web Services Flow Language, is an XML language for describing composite Web services; Sabbah describes WSFL as a precursor to IBM's Business Process Execution Language, at www.ibm.com/developerworks/library/ws-bpel.

Axis 3.0 is an Apache Software Foundation project, and provides an open-source implementation of SOAP, the Simple Object Access Protocol, at http://xml.apache.org/axis.

Also built into WebSphere 5.0 are features for self-configuration, self-healing and self-optimizing, claimed Sabbah, as well as a security system that screens for faulty or malicious service requests.

The app server will be priced at $8,000 per server processor for a single-server configuration, or $12,000 where clustering or failover will be used. ▮

WEBSPHERE GOES LITE

IBM Corp.'s WebSphere application server is among the most popular commercial J2EE implementations, but the software, at $8,000 per processor, is priced beyond many smaller business or departmental budgets. To address this problem, IBM has unveiled WebSphere Express 5.0, a scaled-down version priced at only $2,000 per processor for unlimited user access, or $25 per end user for even smaller deployments.

WebSphere Express, promised to be available by mid-December, is designed to "expand the appeal of WebSphere" to midmarket businesses with between 100 and 1,000 employees, according to Danny Sabbah, vice president of IBM's application and integration middleware division. "We're trying to go downstream, not by changing any of the basic messages, but by simplifying the whole experience. There's a simplified programming model, simplified installation and near-zero administration," he claimed.

Sabbah was vague about the functional subset of WebSphere Express, which is based on the WebSphere 5.0 codebase. "We've got a stripped-down version of the application server itself, which doesn't support full-blown EJB [Enterprise JavaBeans] development; for this particular audience, we've been told that they don't necessarily have the skills to be able to deal with that level of complexity. So, we've mapped the programming model down to something that's consumable, and offers a simplified view of the overall J2EE programming model.

"We've subsetted the single-server application server," Sabbah continued. "It's for a single process and a single server, but in terms of the actual code, there isn't any kind of limitation."

WebSphere Express also includes a wizard-based development tool, which Sabbah said assumes that the developer has no Java skills, but rather, has more experience with products like Microsoft's FrontPage. The focus, he said, is on turning static Web sites into active sites with e-commerce components, such as a shopping cart and product catalog.

–Alan Zeichick

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Technical Interest Jumps at ESC Boston

Wind River pulls out, but attendance, exhibitors hold steady

BY EDWARD J. CORREIA

BOSTON — Floor traffic was brisk at this year's Embedded Systems Conference held here, despite what show organizer CMP Media LLC said was roughly a 10 percent decline in overall attendance compared with last year's East coast show, which attracted 4,418. And while exhibitor participation also was down slightly, attendance at the technical classes jumped to 550 from 341, an increase of more than 60 percent from 2001.

Wasabi's NetBSD 1.6 includes KDE's open desktop GUI environment.

One notable absence was Wind River Systems Inc. Once a fixture at ESC with its large booths and lavish parties, the company also has pulled out of ESC San Francisco in 2003, declaring the shows too general. Wind River was a sponsor of ESC San Francisco this year.

"The interesting stuff doesn't happen [at ESC]," said Jerry Fiddler, Wind River's chairman. Fiddler said that specialized shows such as CES, Networld+Interop and automotive and industrial shows have become more relevant to the company. "Those shows remain interesting because [Wind River's] technology goes to those people. The embedded show is no longer making sense."

SD Times SHOW REPORT

To many other vendors, though, ESC was the right opportunity to announce new and updated products.

Linux developer **TimeSys Corp.** (www.timesys.com) was demonstrating TimeStorm 2.0, the latest version of its forthcoming Eclipse-based C/C++ and Java IDE for Linux and Windows hosts. The software adds makefile and target management, source code control integration and remote debugging to the open-source development environment. A Linux-hosted version was scheduled for release in the first week of this month, with a Windows version to follow around mid-month.

TimeSys and **ADI Engineering Inc**., maker of XScale-based reference boards, have released a version of the TimeSys Linux SDK for ADI's Quinque Compact PCI board (www.adiengineering.com/productsQuinque.html), a hot-swap CPU card for high-speed networking applications.

Accelerated Technology, the embedded systems division of **Mentor Graphics Corp.**, has released codelab 2.0, an update to its embedded hardware and software development environment for Unix that is now implemented as a plug-in to Visual Studio .NET, adding to the C/C++ environment support for C#, and with enhancements to the editor, object browser and window handling. Pricing for codelab 2.0 starts at $695 and includes a copy of

▸ continued on page 15

Hardware Vendors Take the Floor at ESC

BY EDWARD J. CORREIA

BOSTON — Although primarily a software symposium, the Embedded Systems Conference held here last month featured a number of companies displaying advances in hardware.

Processor core developer **ARC International PLC** (www.arc.com) demonstrated the latest version of its ARCtangent-A5 customizable 32-bit RISC/DSP microprocessor core and SoC development kit released in October.

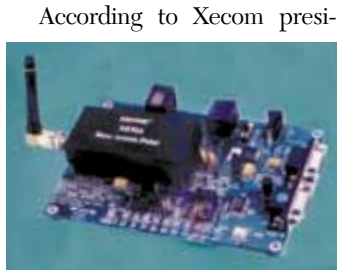
New to the ARCtangent-A5 are application-specific extensions for communications and consumer devices. Mike Gulett, ARC CEO and president, said that reducing the number of intellectual property suppliers required for a project reduces the time needed to complete it. "By obtaining all of the required IP from a single source, developers also reduce cost."

Semiconductor maker **Zilog Inc.** has introduced Z8 Encore, a series of low-cost, 8-bit microcontrollers based on its eZ8 core that the company says is appropriate for embedding in appliances, building and industrial control devices, and instrumentation. According to Raymond Xue, technical marketing manager at Zilog (www.zilog.com), the new circuit outperforms older Zilog MCUs by up to four times while maintaining backward compatibility.

The Z8 Encore can be integrated with as much as 64KB of on-chip Flash memory and 4KB of SRAM, and integrated peripheral options include a DMA controller, 9-bit UART with integrated IrDA and an on-chip debugger. Fully configured, the chips will sell for $4.73 each in quantities of 5,000. A development kit also is available for $50, Xue said, and includes an evaluation board, IDE with ANSI C compiler, serial cable and power supply.

Providing a low-cost means to communicate with and maintain the thousands of potentially deployed smart devices is **Xecom Inc.** (www.xecom.com), which introduced a development kit for its XE 900 Smart Transceiver and XE 924 Base Access Point, a pair of new devices that together can wirelessly connect as many as eight remote devices and enable them to communicate with a back-end network via modem.

According to Xecom president Frank Zhang, the $39 XE 900 uses radio to link with similarly equipped devices in an indoor range of roughly 150 feet; the $59 XE 924 adds a telephone modem. "This can be used for vending machines, Laundromats, portable or temporary factory floor devices and cashless vending machines, such as those on college campuses or in big companies, where people might buy something on account," explained Zhang. The development kit costs $295 and includes both boards, cables and power supplies, and works with a developer's own C-language tools.



Xecom's XE 924 provides dial-in access to up to eight remote devices.

The wireless space is also home to Lucent spinoff **Agere Systems Inc.** (www.agere.com), which was demonstrating Festino Wireless, a hardware and software testing platform introduced in mid-November that according to John Sotir, marketing manager, can dramatically reduce the time and cost of developing design prototypes. "[Festino] lets developers take any or all of our devices and incorporate them into a reference platform," against which to test their applications. Developers can combine network processors, switching and aggregation chips and software to better simulate real-world environments, Sotir said. "This tool can be used to simulate a single component or their entire network before they have to invest in board and software design."

Single-board computer maker **Ampro Computers Inc.** is embracing Linux. The company (www.ampro.com) has joined forces with Linux developer TimeSys Corp. to build a version of the open-source operating system that, according to Ampro CTO Paul Rosenfeld, is more complete than anything supplied by Linux distributors. "The main advantage of our Linux-based solution is that it has all the drivers to run all the peripherals on the board. Linux vendors give you Ethernet and serial for free, and make you pay for the rest. We give you everything for free." Available now, the first Ampro target is the EnCore M3, a MIPS32-based PCI bus board with Fast Ethernet, EIDE, serial, parallel and USB ports, plus an EJTAG debugging port. The price ranges from $250 to $700, depending on configuration.

Windows development tools maker **BSquare Corp**. (www.bsquare.com) was demonstrating the Power Handheld Reference Design, an XScale-based handheld computer running Windows CE .NET 4.1 aimed at OEMs and enterprise developers. According to Von Kendrick Kaneshiro, product manager for SmartBuild development kits,

BSquare's Power Handheld Reference Design features a 640 x 480 display.

the new device, introduced in September, is powerful enough to be used as a laptop replacement. "The screen provides an experience similar to a laptop; applications and Web pages don't have to be modified for the smaller screen," he said.

Weighing in at less than 10 ounces, the palm-sized Power Handheld includes an Intel PXA-250 XScale processor running at 400MHz, 64MB of RAM and 32MB of Flash, one SD memory card slot, a slide-out QWERTY keyboard, an integrated dual-band GSM cell phone with speakerphone, and a 640 x 480 pixel touch-sensitive 65,000-color VGA screen. Integrated software includes Internet Explorer 5.5 with Macromedia Flash and a PDF viewer, Insignia's pJava JVM and SMS and MSN messaging. Development tools include BSquare's mobile device management software for updating software on deployed devices. Prices range between $600 and $800, according to the company. ■

ESC BOSTON

◂ continued from page 14

VS.NET for use in the U.S.

AT (www.acceleratedtechnology.com) also has released the XRAY Software Development Kit, which integrates Mentor's XRAY debugger and Microtec compiler with the codelab environment. Pricing for the XRAY SDK starts at $5,995. In addition, AT has completed the integration of its Nucleus real-time operating system with E-SIM, a prototyping tool introduced by Mentor in June. Nucleus developers can now build and debug applications atop the RTOS without the presence of target hardware, the company said.

With a new emphasis on the storage markets, **Wasabi Systems Inc.** has released a version of NetBSD for Xilinx Inc.'s Virtex-II Pro, a field programmable gate array that incorporates an IBM PowerPC core with gigabit Ethernet transceivers. The company also has released an embedded version of its Flash file system with load leveling and an iSCSI protocol stack. "The storage market is key to our strategy," said Frank Logan, Wasabi's new president and CEO.

Wasabi (www.wasabisystems.com) also has released a version of NetBSD for AMD's Alchemy Pb1000 development board. The board and processor could be used in GUI-based apps that would use KDE's open desktop, which is now supported by NetBSD 1.6.

Embedded tools maker **I-Logix Inc**. (www.ilogix.com) has released Rhapsody 4.1, the latest version of its UML-based modeling environment for embedded systems that now includes Rhapsody in Ada, an optional module that adds support for Ada 83 and Ada 95 languages for forward and reverse engineering. "People can reuse their legacy source code and evolve their designs with additional functionality using UML," claimed Jim McElroy, director of Rhapsody product marketing.

McElroy said this so-called design-level debugging lets developers "raise the visibility of their design and shorten the debug cycle." Rhapsody 4.1 sells for about $11,000 per developer seat. The Rhapsody in Ada module, which adds a rules-based code-generation and reverse-engineering engine, costs about $2,000 more. ■

STRIDE

◂ continued from page 1

Stride works in conjunction with the developer's IDE and other development tools. "Unit testing is where we become most effective. Think of it as an IDE for testers and integrators," Wenk said. The platform also can simulate missing components, he added, enabling developers to build and integrate incrementally.

"Since we're geared toward interfaces, code acquired from elsewhere…is easier to integrate and debug. And our automated test wrappers don't change the functionality of the code," he said, adding that prior to this release, shops wishing to view internal interface activities had to include printf commands in the code, which add to code size and complexity and must later be removed. Wenk further claimed that any COM-compliant Windows application can be used to drive test scenarios. "You could write your scripts in [Microsoft] Excel, if you want, and add test cases that way."

Pricing for Stride 1.0, announced at the Embedded Systems Conference in Boston and released on Nov. 25 for Windows hosts, starts at $10,000 per developer seat. The tools are independent of target processor and operating system. ■

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2002 COMEX AWARDS

Real Change

Demand for transparency has RTOS vendors selling subscriptions, dropping upfront royalties, offering source code

BY EDWARD J. CORREIA

Pioneers of the real-time operating system industry built their businesses by keeping things secret, never letting customers get too close to the golden RTOS goose. And while pockets of black-box code still exist, pressure from Linux and other open-source movements is forcing RTOS vendors to reveal their source code, give away software and forgo upfront royalties that were once the foundation of the commercial RTOS business.

"It's certainly a trend when you see the five biggest companies except for Microsoft doing it," said Chris Lanfear, practice director for embedded systems software at research firm Venture Development Corp., who cited Wind River Systems Inc., which for the first time in November began offering subscription-based pricing to any customer requesting it. "For Wind River, which is notorious for being hard to work with, it offers their biggest and most profitable clients a real easy way of doing business with them." According to VDC, Wind River leads the industry in global RTOS sales with about 30 percent.

MontaVista invented the subscription model, claims Ready.

Always Wind River's antagonist, Green Hills Software Inc. (www.ghs.com) quickly followed suit with a similar announcement, and for the first time now delivers all its development tools and debugging products for a single subscription fee; its ThreadX and Integrity RTOSes continue to be royalty-free with source code available for a fee. John Carbone, Green Hills' vice president of marketing, admitted that competitive pressures from Wind River—as well as embedded Linux distributions—contributed to the change. "Competitors have been offering subscription pricing for a while, and our customers have found that interesting. Open-source, subscription pricing and royalty-free operation also have been strong factors in pulling people toward a Linux solution." Another major player that recently modified its pricing model is LynuxWorks Inc., which earlier this month also added vertical bundles around its LynxOS RTOS.

VALIDATING THE MODEL

Jim Ready, CEO of embedded Linux developer MontaVista Software Inc., sees the shift at Wind River as validation of the subscription model MontaVista has offered since it opened its doors in 1999. "Wind [River] blinked," he claimed. "The big picture is that what we're doing—the way we sell—is making the largest guy in the business change their business plan, which is not an easy thing to do," a boast that Wind River chairman Jerry Fiddler denies. According to VDC, MontaVista is the top supplier of Linux for embedded systems, with an estimated share of roughly 25 percent of the embedded Linux market. "We invented this model, at least for the RTOS industry," claimed Ready. The company also offers vertically targeted bundles.

Ready asserted that the subscription model, which does not require updates to generate revenue, introduces revisions more appropriately, when they're based on technological advances. "The subscription model bases your business on a long-term relationship. Software [revisions are] usually included in the subscription, so your incentive is more practical and beneficial in nature, as opposed to [generating] revenue."

Dave Fraser, group vice president and general manager of products at Wind River, said that directly or indirectly, Linux was a significant factor in the company's decision to offer subscription pricing. "Two things have been [damaging to] us over the past couple of years: the devastation of the network communications industry, which was a large part of our business, and the interest in Linux," as companies sought to change from in-house proprietary RTOSes to either an open-source or commercial off-the-shelf RTOS, he said.

SEEKING STANDARDIZATION

Fraser said there has been a shift in the market from "tactical, noncoordinated decisions around software, to standardization. Most companies today…have 20 different microprocessors, 10 different OSes and many different sets of protocols and middleware. There's just no standardization. There's no synergy or capability to leverage this increasingly expensive asset they are developing."

He said Linux is a popular choice to consider for companies seeking to replace their own proprietary internal software. "Yet software is becoming the primary mechanism they are [using to] differentiate and add value to their products. So depending on the size and sophistication of the company, the standardization push is coming loud and clear from the top" to acquire standardized integrated platforms, he said.

Fraser said that was precisely the thinking behind Wind River's new policies, and that standardizing on certain software components across an enterprise translates into better spending. "We're moving away from restrictions on projects, CPU architecture, site and host, and we're adopting an annual subscription per-seat enterprise license model. Once you've licensed Wind River [software], you can use the technology for any project on any site with any architecture and host environment."

Dan Dodge, CEO of QNX Software Systems Ltd. (www.qnx.com), said that companies are looking at software standardization to help reduce costs. "It has become a big issue. When time and money were [abundant], each team could go out and negotiate their own [contracts]. Now companies are trying to be more efficient and adopt corporatewide agreements on operating-system technologies and development environments because training costs are reduced," he said.

Standardizing the embedded software within a large organization is easier said than done, however. According to Jim Ritchie, a managing partner at value-added distributor Embedded Solutions Partners (www.esolpartners.com), and formerly Wind River's director of corporate business development and strategy, "[Standardization] is a difficult thing to make happen in a global enterprise, because [large companies] are so distributed and have so many decision-making bodies. CEOs generally do not make any technology decisions. These types of decisions are generally made by project people responsible for delivering the product or by a group

that looks after standards." He added that there's usually plenty of politics between the two.

A ROYAL-TY PAIN

Ritchie said that while the embedded software subscription model simplifies development for geographically dispersed engineering teams, the way Wind River has implemented royalties also will be beneficial to customers, perhaps more than to itself. "Wind River subscribers can now accumulate royalty volumes enterprisewide. That's problematic for a couple of reasons. First of all, most projects fail, and many never meet their projected volumes. Historically, Wind River has tried to extract as much money upfront based on the customer's inflated expectations. Then [Wind River] not only got the benefits of cash-in-hand, which are not trivial, they also were able to extract the most money based on customer optimism when it was at its height. So if you wait to collect your money until it's shipping and reality sets in, you have a lot less volume to collect from, because reality never meets expectations."

VDC's Lanfear backed up Ritchie's assertions about the potential benefits of Wind River's new plan for customers. "Volume discounts will be more easily achieved; runtime royalties will now be accessed across an entire corporation or division instead of project by project. So now [buyers] can hit those volume numbers more easily because you can aggregate all the royalties for the entire company." Still, Lanfear acknowledged there's also something in it for Wind River. "Per-seat revenues are expected to increase under this plan."

Paul Zorfass, a senior analyst at research firm International Data Corp., said the move toward subscription pricing is probably inevitable for most companies currently charging royalties. "[Developers] do not like paying royalties; they do it because they have to. Wind River has been moving toward this pricing model for a while. Anyone who has had a royalty-based pricing system has had to deal with others that offer a single-payout system. Pressure has also been there from OEMs and from small competitors."

This is how companies do business today, says IDC's Zorfass.

Wind River's Fiddler, who also co-founded the company, explained why it has changed its policies. "It's not about MontaVista or Green Hills. For me, it's not about Linux or the competition at all. It's about what customers are saying and the pain they are feeling. Obviously some customers have looked at Linux seriously, and I want to say, 'Why did they do that? What are the lessons we can learn about what's good about Linux?' One is that it's easy to get. And customers like having source code around, so we're delivering much more source code than we have before. There are lessons we've drawn from that, but it's not necessarily about competing with Linux per se as much as looking around and drawing lessons."

But ESP's Ritchie contended that Wind River is about to learn a new lesson, because even for devices successfully developed and deployed, back-end royalty collection can be problematic. "The royalty model in embedded systems is a fallacy. The only company that actually collects royalties for operating systems is a monopoly. Even though they may collect a per-unit payment, the bottom line is once the dollar amount gets to a threshold of say, $100,000 per year, the customer comes back and demands renegotiation. And if you don't, they design you out immediately. And they can, because you're not a monopoly. That's the dirty little secret of the embedded industry."

"When dollars get tight, people get nervous about upfront fees," said QNX's Dodge, adding that tightening budgets have caused a form of sticker shock, and have contributed to the recent shifts in the RTOS industry. He also believes that the days of the closed-source RTOS may be numbered. "Openness is something that you have to address in every sale. We don't throw our kernel out there and let a community take it forward, but we do make our source available to [customers], and they own any changes. Companies are tired of being locked in, because when you're locked in, you can be gouged," he said. QNX develops and markets Neutrino, a POSIX-compliant RTOS, and provides tools based on IBM's Eclipse open-source development environment.

IDC's Zorfass said subscription pricing comes in line with how companies are operating in today's economy. "What we're starting to see is that the choice of software is not going to reside solely with the software engineering team, which is where it has resided. The decisions for hardware components and selection have been made from higher levels of management where they look at more than one issue than the technology dimension. They look at pricing, second sourcing, distribution and other parameters," he said, but he thinks that this, too, may be temporary. "Every company wants a corporate site license, but it's tough to do. I've seen lots of companies try it. Different divisions think they have different requirements and they don't want to be dictated to from a corporate point of view, even though [the solution] might be good from an engineering point of view." ▮

Vertical Bundling a Mixed Bag

Could developers be paying for software they don't need?

BY EDWARD J. CORREIA

As RTOS vendors scramble for ways to increase profits in a shrinking economy, one time-tested method that has emerged is bundling. Among the first this year to announce a new branding strategy was QNX Software Systems Ltd., which in June launched Momentics, the implementation of a broad product plan to combine its Neutrino RTOS with development tools and services.

Embedded Linux developer MontaVista Software Inc. followed in August with a series of preview kits targeted at various device types and markets. Then in early November, Wind River Systems Inc. and Green Hills Software Inc., launched sweeping changes to the way their products are bundled, licensed and supported. LynuxWorks Inc. in early December was the latest to get on board with similar plans.

According to Jerry Fiddler, chairman of Wind River, the move was an attempt to get a bigger share of the embedded development pie. "We tried to measure how much money is spent on developing embedded software," he explained. "We looked at the top 20 companies in each of the five markets we focus on. We figured that last year, they spent about $23 billion developing embedded software. Of that, less than 10 percent is outsourced. The goal is not to compete with other [companies] doing what we do, but to [get more of] that $23 billion."

To that end, Wind River has created five vertical bundles, one for each of its main target markets of automotive, consumer, industrial, aerospace/defense, and network infrastructure. Its bundles include VxWorks RTOS, Tornado development tools, debugging tools, communications and management stacks, and development and support services; some contain hardware reference designs. "This is not a full outsource model by any means, but it's a step in the direction of having us do more for customers," said Fiddler.

For Dan Dodge, CEO of QNX, bundling was the move that helped turn his company around. "Since we've re-

► continued on page 18

BUNDLING

◂ continued from page 17

leased our integrated solution, revenue [from] development seat sales has gone up 90 percent" from the same period a year ago, Dodge claimed. "There's no question that having the tools and the OS tightly bundled was absolutely essential."

To Curt Schacker, a managing partner with value-added distributor Embedded Solutions Partners, using a bundled solution is an efficient way to begin a development project. "With a few exceptions, there's a certain level of commonality among embedded devices, starting at the operating-system level. They provide the same set of services whether it's a telecom switch, a medical instrument or an industrial control device."

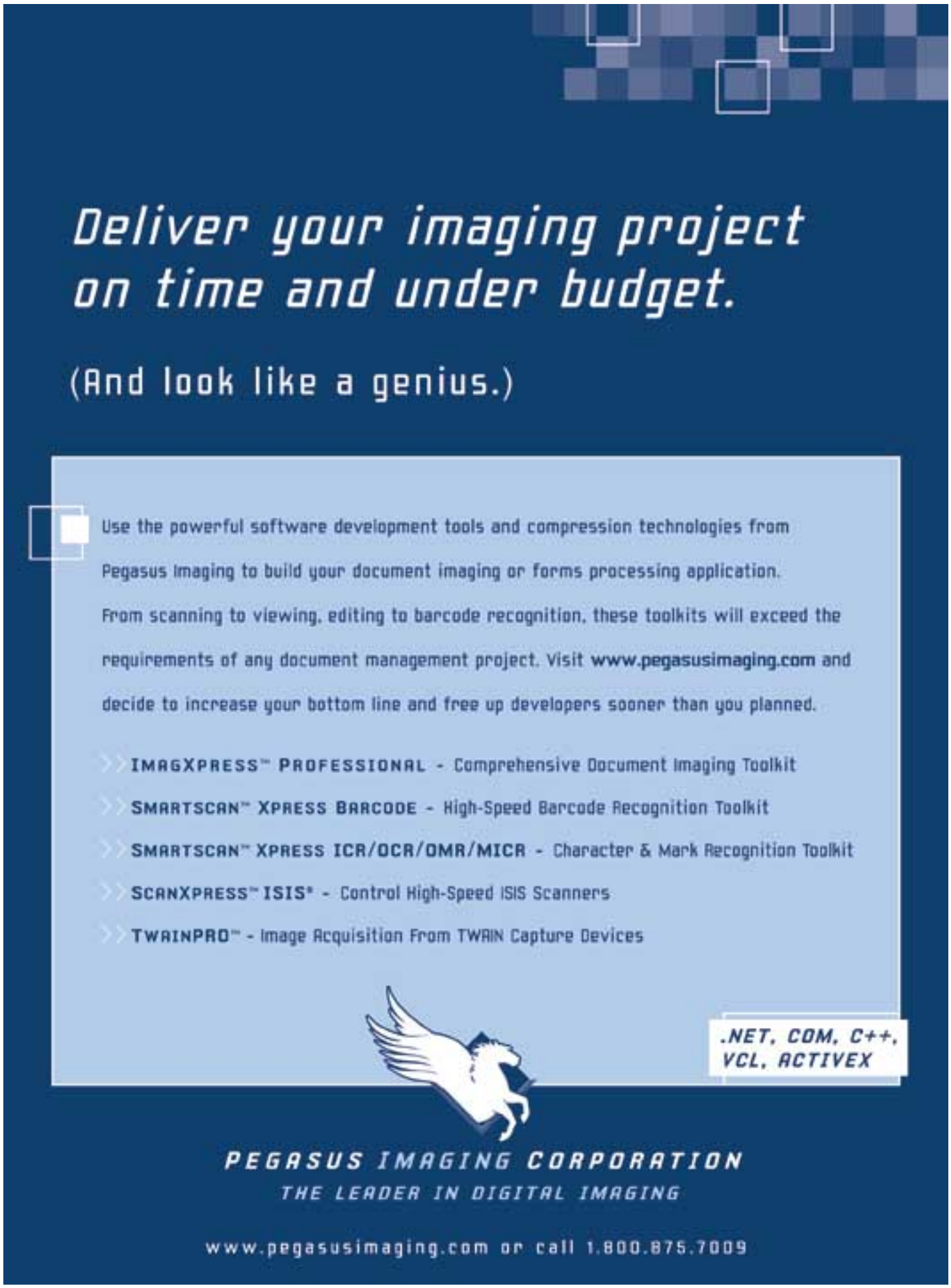
But Schacker said that from a customer's perspective, bundling can have a perceived downside. "Prepackaged solutions will sometimes hit the mark and sometimes will not. Bundling requires an assumption about customer requirements. If somebody doesn't need those pieces, they may still have a perception they are being charged for them; a notion most people aren't very comfortable with.

"There gets to be a point at which these products do very different things," Schacker continued, "and that has presented both a challenge and an opportunity. The challenge is that [RTOS vendors] can no longer take each R&D investment dollar and leverage it across an entire industry. There will be certain features or products that can only be sold to a subset of customers in certain market segments. That's a different economic model, and it's more challenging to be profitable there. The opportunity comes if you can add more value up the software stack and cater to the needs in vertical markets."

Linux goes into more places than RTOS kernels, claims MontaVista's Weinberg.

Bill Weinberg, director of strategic marketing at MontaVista, said that because its embedded solution centers around Linux, it can go into more designs without being surrounded with a lot of additional specialized software. "Our Professional Edition can go into a lot of places. Linux differentiates from the relative simplicity of an RTOS, which is just a kernel, and it makes the strategy of a vendor different in terms of how they go after a vertical. MontaVista has focused on making the platform [meet] functional requirements, then partnering to complete the rest of the [application]. What Wind and other RTOS vendors do is to throw a lot of host-based tools at the problem, which…doesn't give you a platform you can deploy on."

ESP's Schacker said that the common perception of today's RTOS market boils down to two choices. The first is the one-stop shop, under which RTOS vendors offer to build the entire system for you using their own components, which may or may not be the best technically. This benefits customers by reducing the number of vendors involved in support and licensing issues. "Choice B," he said, "is to cobble together the solution yourself. And by shopping around, you're probably able to get better technology, but the tradeoff is that you become the systems integrator; you have to make it all work and port it to your hardware." ▮



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DECEMBER 15, 2002
ISSUE NO. 068

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Embedded Tools Maker Hits Stride

S2 integration platform exposes interfaces

BY EDWARD J. CORREIA

Stride's runtime-based environment permits feature changes in deployed devices, the company claims.

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EDITORIALS

IBM's WebSphere Spin

With the introduction of version 5.0 of the WebSphere application server, IBM Corp. is demonstrating that it's prepared to extend the Java specifications in directions that better suit its own business goals. While IBM's ideas are often compelling, its go-it-alone stance is increasingly ill-suited to a company that claims to be focused on standards.¶

In the new version of WebSphere, examples of the company's proprietary approach can be seen in WSIF, the Web Services Invocation Framework, and WSFL, or Web Services Flow Language. While the company has released implementations of these APIs to its Web sites (alphaWorks and developerWorks, respectively), the company has not proposed releasing them to a standards body—or even to a vendor consortium like Sun's Java Community Process. IBM is also promoting new features within the WebSphere application server that tie it more closely with its own Portal Server.

Certainly, IBM is not alone in unilaterally extending the Java and Web services specifications. BEA Systems Inc., Oracle Corp. and Sun Microsystems Inc., the other thought leaders in the J2EE space, have been known to tout their adherence to "open standards" while promoting their own proprietary agenda, though these companies tend to be more subtle. And while its adventures with Java appear to be winding down, Microsoft Corp. remains the grand master of the embrace-and-extend game. Yet since IBM is the $85 billion gorilla in the IT market, its actions warrant close scrutiny.

J2EE's Enduring Legacy

As each of the major Java platform vendors continues to tightly integrate its software stack, one can't help but wonder about the ongoing relevance of Java 2 Enterprise Edition. The J2EE specs provide a rich set of APIs that are common to all of the J2EE 1.3-certified application servers, and the Java Community Process is driving toward the next update of the platform, expected to be finished in the first half of 2003. But one of the founding tenets of the Java movement, code portability, continues to suffer.

Yes, developers can code to the J2EE specifications, and create reasonably portable code that can be deployed on Oracle9iAS, WebLogic, WebSphere, Sun ONE and the other certified application servers. But that's not what these vendors are touting. Their message is that you need to use their complete software stack—including the special hooks, application frameworks, API extensions, bean types, runtime extensions, homegrown protocols and optimized IDEs. And as soon as you begin coding to their special features, which aren't official industry standards or even vendor-consortium specifications, application portability goes right out the window. You're not a J2EE shop; you're a WebSphere shop—or an Oracle, Sun ONE or WebLogic shop. This isn't specific to IBM, though the breadth of its WebSphere and DB2 product lines gives it a competitive edge in the end-to-end solutions space.

Is that so bad? In some ways, no, because systems built on different J2EE stacks should be interoperable via Web services. Still, it's a shame watching the relevance of the grand "run anywhere" vision fade away. ▮

GUEST VIEW

MOVING TOWARD A BUSINESS PROCESS STANDARD

We have been hearing quite a bit about business process management this year. Why? Because every business relies on its operations. Operations involve hundreds, thousands and even millions of individual processes—how things get done. From the business perspective, automating processes helps improve efficiency, productivity and speed. Companies that are flexible enough to adjust processes to meet changing market needs can build a significant competitive advantage.

If you walk down the hall to the information technology (IT) department, however, you see a very different perspective on automating business processes. While new technologies, such as Web services, offer a myriad of opportunities to improve the way a business operates, they also offer another challenge: understanding and capturing business processes so they can be translated onto a technology platform. Many companies haven't captured their business processes as part of their technology planning, which could be buried in complex code or manual processes that are not documented. Thus, adopting new technologies suddenly becomes much more difficult and costly.

Jan Popkin is founder and CEO of Popkin Software, a developer of enterprise architecture and modeling tools.

Therein lies the challenge of adopting Web services—they're a technology that requires companies to understand the processes that make the business operate. Modeling business processes is a necessary step to truly take advantage of their benefits. Web services promise organizations the ability to utilize their existing software infrastructure, then use Web services interfaces to build more systems and applications that in turn support collaboration. Web services support choreographing an end-to-end process completely through a value chain, whether the process is internal or external. But it all comes back to understanding business processes first.

The foundation of Web services is business process management, or BPM. BPM is a standard that helps businesses identify, capture and manage their business processes through technology. BPM provides the structure for Web services because it brings together the various aspects of operations: people, tasks, processes, systems, applications, their locations and the impact of other organizations.

With the advent of Web services, developing a BPM standard has risen in importance. A BPM standard can form an effective base for describing the implementation of Web services by automating some of the mundane translation from BPM into Web services. Industry leaders are already heading up standards initiatives and joining forces to work out common ways of working.

Industry leaders formed

GUEST VIEW

MACROMEDIA–A SURPRISING ALTERNATIVE

In the IT industry, we analysts always talk about who will be the top three software companies. We usually have in mind a combination of Microsoft, IBM and "A.N. Other," with any number of companies placed in the third slot, depending on market sector. In the application development sector, it's time to be more specific and put our money on someone once and for all.

Imagine a faceless golfer with impeccable pedigree, who hangs in there and sneaks a major title at the end of the season when everyone was focused on the big names at the head of the leader board. He may not be exciting, but he sure is successful. Now put Macromedia in golf spikes and you get the picture.

If Microsoft and IBM are the Tiger Woods and Phil Mickelson of the IT world, then Macromedia is A.N. Other. I am not for a minute suggesting that what Macromedia is doing is not exciting, but for all its worthy success, it tends to be overlooked. Nonetheless, we should start to take its challenge seriously.

First, Macromedia successfully acquired Allaire—an astute move that bought gravitas to its design-based tools and added middleware capability to its product portfolio. The company even found a way of breathing new life into Allaire's ColdFusion, which was no small feat for a development and runtime environment that sat at odds with the growing trend to opt for either a Microsoft or Java-based platform. And Macromedia's low-end J2EE application server JRun—on top of which ColdFusion now sits—enjoys a respectable and notable placing in the J2EE-based application server league.

BOLA ROTIBI

So, in light of this, why shouldn't Macromedia rise above the others? The company owns the Flash Player, arguably the most widely ported software on the planet, with more ubiquity than Java with its Java Virtual Machine (JVM). Granted, the Flash Player has a lot less to control than the JVM, but with its installed base, only a fool can ignore the opportunity this presents to the company. And there can be no doubt that Macromedia is repositioning Flash to capitalise on this popularity. Flash MX may still be very much a tool for the designer, but the improved programming capabilities make it more palatable for application developers who want the wow factor of animation and interactivity.

But it doesn't stop there. In mid-November, Macromedia released Contribute, the latest product to join its newly revamped and MaXimum Strength (MX) product portfolio. Contribute allows those with no prior knowledge of HTML to directly edit and publish static Web pages.

And before you all go rushing off into apoplectic fits over security violations, the key to Contribute is that control remains in the hands of the Web administrator/developer who will have total power over which parts of the page can be accessed, and by whom. Those lucky enough to attend Macromedia's 2002 DevCon in Orlando, Fla.—and to sign the unnecessary and highly impra-

BPMI.org , a non-profit organization, in 2000. BPMI.org's intention is to develop specifications that form business processing management standards. BPMI.org's first action was to produce a draft of the business process execution language BPML 1.0. This was publicly released for review this past August. Latterly, the Business Process Modeling Notation (BPMN) was developed as a standard offering a common graphical view of a business process model. BPMN is providing a much-needed notation as an umbrella to graphically represent any business process execution language, not just BPML.

Also in the standards fray is OASIS, which advocates ebXML, its own defined set of business processes that standardize how businesses interact over the Web. ebXML provides a set of processes that are executable, loosely coupled in design, and transport independent. ebXML processes may be represented in BPMN and may also be executed in a set of business process execution languages.

This past summer, IBM and Microsoft weighed in with their expertise, announcing another standard, BPEL4WS (Business Process Execution Language for Web Services). Until recently, Microsoft had developed XLANG based on the Pi-Calculus model, and IBM had endorsed Petri Nets through WSFL (Web Services Flow Language). BPEL4WS is targeted specifically at the emerging Web services market and is an amalgamation of WSFL and XLANG.

JAN POPKIN

What's striking is how similar the BPEL4WS standard is to BPML 1.0. They share similar roots in Web services (SOAP, WSDL, UDDI), take advantage of the same XML technologies (XPath, XSDL) and are designed to leverage other specifications (WS-Security, WS-Transactions). Both can build on the foundation of the recently approved Web Service Choreography Interface (WSCI), a process interface definition language for business processes for expressing public interfaces and choreographies. BPML and BPEL4WS are both block-structured languages sharing a similar set of idioms and syntaxes.

What does it mean for IT organizations? First, the BPM standard is a first, much-needed step to making Web services a reality for most organizations. It will provide the industry standard that shows widespread acceptance and helps CIOs feel more secure in making an investment.

A new BPM standard also will help companies unite the execution side of business processes (currently covered by specifications such as BPML and BPEL4WS) to the business design (through the development of the BPMN), as well as their deployment, control and optimization. An organization will be able to visualize, define, deploy and manage their business processes in one common visual language with useful extensions of the execution engine.

The standard also will help IT departments meet the rigorous requirements of business process modeling in other applications, such as workflow systems, enterprise application integration suites and proprietary tools like ERP and CRM packages.

As for what's next in the standards race, we should see a natural evolution of standards into one standard or a small set of specialized or best practice standards. There are reasonable advantages for the various standards to merge. But until that happens, organizations should look for tool vendors that show significant support for mainstream standards and demonstrate their intention to adopt the standards as part of their future tool offerings.

The most exciting news is that after 20 years, the industry is finally moving toward a business process standard, whether applicable to Web services or workflow systems or federal/state government architectures. Organizations ranging from the new Homeland Security office to global Fortune 500 companies require process analysis to help them improve their collaboration and make smarter technology investments. This standard brings us one step closer to achieving that. ▮

tical nondisclosure forms—were amongst the first to see the product in action.

The full power of Contribute may take some time to filter through, but its immediate benefits to those who rely on Web developers to update simple static data is very apparent. Contribute may not be a panacea to all your bottleneck problems with updating content, but it does pose a more interesting threat to the use of Microsoft's Word as an efficient medium for publishing Web content.

In many respects, Macromedia is like Microsoft, but without the reputation (yet) and, of course, the fabulously cash-rich bank account. Similarly, the company boasts as enthusiastic and loyal a following—albeit primarily among Web designers and builders—but also increasingly among Web application developers.

Not that the future is without challenges. Macromedia still needs to win over more of the hard-core application developer community. Also, it must do so without disenfranchising its core design community. Some hard decisions need to be made with respect to its product portfolio.

For all its success, Macromedia is a technology that isn't traditionally associated with enterprise development. And its recent acquisitions coupled with a new strategy and plenty of internal development, suggests that the company is prepared to move beyond the world of cool site design to punch it out in the harsher but more lucrative application development market.

The real danger for its competitors is to underestimate the compelling features and potential of Macromedia's product offerings: interactive-centricity, massive installed base, easy-to-use Web site management, low-cost server-side development and runtime environment, and its efforts to improve usability.

After all, we are entering into a more pervasive, interactive and communicative world, from both a consumer and enterprise standpoint. In this environment, the user experience—developer to end user—is paramount. Surely a company that has this at its heart cannot be far from receiving the recognition it deserves. ▮

Bola Rotibi, a chartered engineer, is the lead analyst for software development strategies and e-infrastructure at research firm Ovum Ltd.

LETTERS TO THE EDITOR

TWO-WAY COMMUNICATION

Just read Steven Vaughan-Nichols' column ["Should Top Developers Code or Manage?" Nov. 1, page 29, or at www.sdtimes.com/cols/javawatch_065.htm]. Excellent piece. Having been a part of the computer and software industry now for over 20 years, I've seen good managers and bad, great developers and mediocre ones. Regardless, it's my experience that almost everybody works hard and feels they are doing their best to get to the end result. The importance of being able to understand and communicate in both directions to both developers and management cannot be overstated.

Joe Licari
Director Product Management
Sybari Software Inc.

WHAT IS SUN'S MESSAGE?

Interesting that Jonathan Schwartz believes Sun is the innovator at this time ["Schwartz: Sun's Future Tied to Solaris," Nov. 15, page 1, or at www.sdtimes.com/news/066/story3.htm]. Sun has been losing market share to the very companies he cites as weak and non-innovative. I wouldn't bet against IBM and Microsoft.

Sun has yet to demonstrate an ability to develop a cohesive, comprehensive software strategy. Much of their software "innovation" has been the result of acquisitions. They face the daunting task of integrating those multiple acquisitions into a seamless environment which developers, and knowledge workers in the future, will find enticing. Although Sun has driven the Java market, and has been incredibly supportive of companies in that space, they have yet to turn a profit on their software endeavors. I guess the real question is how long will [Sun CEO] Scott [McNealy] tolerate significant software losses to support hardware that is losing market share to Dell and IBM.

Jay Leite

Editor's note: The writer is chief operating officer at Object Venture Inc., a Sun Microsystems Inc. business partner.

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SD Times
SOFTWARE DEVELOPMENT
Software Development Times
December 15, 2002 – Issue No. 068

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IN THE CHIPS

MIDDLEWARE WATCH

ANDREW BINSTOCK

One of the easiest errors a Web site's developers and administrators can make is to run software on the wrong hardware. For example, running a database server on a system with a processor that's not designed for server work will lead to terrible performance no matter how good the rest of the system. Neither the software, nor the storage hardware, nor faster connectivity will help the problem. Hence, it makes sense for enterprise sites to pay some attention to what is going on in the world of processors.

This year's Microprocessor Forum—the annual strategic confab of the semiconductor industry—was particularly important to enterprise customers, because a variety of important chips are about to compete with each other for their business.

At the Forum, the central topic was the upcoming war between Intel and AMD's 64-bit initiatives. Intel, as many readers know, developed a whole new chip architecture called EPIC that specializes in performing parallel operations at very high speeds. It uses a technique known as very long instruction words (VLIW), which are in effect bundles of instructions that can be executed in one cycle.

The first chips bearing the EPIC architecture are the Itanium and Itanium 2 processors. EPIC instruction sets are not compatible with the traditional Intel *x*86 instructions, so the company added circuitry to be able to execute *x*86 binaries natively. While the *x*86 performance on the Itanium 2 processor is pretty good, the real story is the performance of native EPIC code. When Itanium 2 was released this summer, it shattered most enterprise-oriented processor benchmarks. It also demolished records for floating-point performance. In addition to performance, the architecture has the singular benefit of price.

The Itanium 2 chips are significantly less expensive than 64-bit processors from other companies. The sole drawback is that to get the benefit of EPIC performance, code must be ported specifically to the platform. So, Itanium 2's future depends significantly on the willingness of ISVs to port their databases, tools and products to the processor.

Intel's archenemy, AMD, has chosen a different path with its Opteron architecture. AMD created 64-bit extensions to the existing 32-bit *x*86 instruction set from Intel. These extensions create a compatible superset, just like the 386 chip created a 32-bit superset of 16-bit 8086/286 code nearly 15 years ago. With Opteron, a 32-bit register becomes the lower half of a 64-bit register; and 32-bit addresses are a sector in the 64-bit address space.

The result? AMD chips will run 32-bit code at full speed *without recompilation*. As a vendor updates its product, it just turns on the 64-bit extensions, and if the code is running on the Opteron chips (currently code-named Hammer), the full scope of the architecture can be used. Since the fundamental instruction set is *x*86, ISVs don't have to port or retest when they move to 64 bits; they just recompile.

The Itanium 2 processor's performance edge came under significant attack when AMD announced at the Forum that its projected benchmarks showed it leading the Itanium 2 processor when it ships customer silicon sometime next year. Of course, by then new generations of Itanium using smaller die size and improved performance will be shipping.

The question will be whether the easy migration provided by AMD's solution will give Opteron the basis for stealing some market share from Intel. Few analysts were willing to commit to an opinion either way, but the overwhelming consensus was that AMD was in a better position to challenge Intel than it had been in years. This is going to be a heckuva catfight, and the real winner will be buyers.

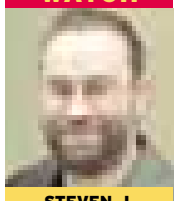
When you consider that Intel 2.4GHz Xeon processors with half a meg of cache sell for less than $250, you have to conclude that buyers of workstations and departmental servers already enjoy terrific benefits from this competition. Now enterprises will enjoy similar benefits as well.

The other really interesting development was Intel's presentation on Banias, its new notebook chip architecture. Banias turns off portions of the Pentium 4 core when they're not in use. This saves power, which both lowers heat and greatly extends battery life. How Banias fits into the product mix versus the Pentium Mobile processor has yet to be announced. However, its unusual technology should have a significant effect on notebook processors from here on. It will be released in the first half of 2003, according to Intel. If AMD ships Opteron chips on time, next year figures to be one of the most interesting on record. ▮

Andrew Binstock is the principal analyst at Pacific Data Works LLC.

BENCHMARKS IN THE MIDDLE

JAVA WATCH



STEVEN J. VAUGHAN-NICHOLS

Here we go again. Another day, another J2EE versus .NET benchmark fuss. This time, the benchmarker in the middle is The Middleware Company, which runs the popular J2EE Slashdot-style Web site, TheServerSide.com. TMC has been a well-respected Java company, even though its parent company, Precise Software Solutions, is a Microsoft strategic partner. TMC recently revealed benchmark results that demonstrated that the .NET version of Sun's Java Pet Store reference implementation ran much faster than J2EE reference implementations.

When it came out that its .NET and Java benchmarking was sponsored by Microsoft, and that Microsoft, but not the J2EE vendors, was allowed to "help" in the benchmarking, TMC's credibility went right down the toilet.

While the benchmark (www.middleware-company.com/j2eedotnetbench), using an optimized version of Sun's Java Pet Store reference application, showed Java in a much better light than Microsoft's May Pet Shop-based benchmark (www.gotdotnet.com/team/compare/Benchmark_ShortRepFinal.pdf), TMC's results demonstrated that .NET was still better. Since then, Microsoft released yet another Pet Store benchmark showing—what a surprise—.NET once more beating the pants off J2EE.

Now, I explained back on Sept. 1 ("Lies, Damned Lies & Java Benchmarks," page 33, or at www.sdtimes.com/cols/javawatch_061.htm) why benchmarks are easy to foul up and why Java Pet Store isn't suitable for benchmarking anyway, so I'm not going to dig through all that dirt again. I will say, though, that if TMC does indeed run the benchmarks again, as it says it might, this time with the Java community and J2EE vendors involved, it will still have people whining about the results.

Here's why: For starters, there's no good way to benchmark complex applications and come up with simple answers. For example, as some people are already pointing out, .NET is optimized for Windows, while many think that J2EE shows to best advantage on Linux or Unix. The problem: So, when you run your benchmarks, what are you measuring? The architecture of the application, the quality of coding of the application, the quality of the middleware, or operating-system optimizations for that particular middleware/application combination?

You know what I mean. Anyone who can program his or her way out of a shoebox knows that it's not just the code that determines how well a program will work, it's the entire hardware and operating-system environment. Heck, that's what keeps systems integrators in business—taking all the parts and making them work together as best they can.

It's that same approach you need to take when seriously trying to talk someone into using Java over .NET or some other middleware solution. What's important isn't who can make Pet Shop (which was never meant for benchmarking) run the fastest—it's who can deliver the best program for a customer today.

Think about it: You probably have programmers with years of experience using Java to create everything from applets to enterprise applications for real-life customers facing real-world problems. And exactly how many .NET/C# programmers are doing that today? Answer: almost none.

Oh certainly, there are Microsoft partners doing major pilot projects, and I know I'll get outraged mail from Microsoft customers saying they've been using .NET and how wonderful it is. Sorry, folks, but the bottom line is that you number, at the absolute most, in the hundreds, with experience that's measured in months. There are tens of thousands of Java programmers with years of experience.

Maybe someday .NET will be the greatest thing since Dennis Ritchie got tired of messing around with B and extended it to create C back in 1971—but for 2003 and 2004, Java and not C# will still be the programming language of choice for anyone who wants to create serious high-level applications.

Java shops have more than just experience going for them; Java has always been more portable than any other language. No, it's never been as portable as the hype would lead a naive programmer to believe, but name a serious development language that is more portable? There are attempts, like the Mono Project, but .NET and C# are still essentially Windows-only plays.

Of course, many people, who can look only as far as their desktops, will say that it's already a Windows-only world. Wrong. Despite all of Microsoft's efforts, the server universe beyond the workgroup is still dominated by Unix. And, for that matter, Linux is making great strides in the workgroup's file/print realm.

Finally, despite all of Microsoft's hype, the bottom-line economic truth is that there's no compelling financial reason to switch to .NET. Companies are hard-pressed to make their IT payrolls and maintain their current contracts. This is no time for any business to switch from a proven Java-based infrastructure to an unproven one. If a customer starts talking to you about switching over to .NET, just ask him if he's considered the retraining, infrastructure and switchover costs. Trust me—play the experience and economic cards right, and no matter how much he believes in Microsoft's benchmarks, he's not going to switch over this year or next. ▮

Steven J. Vaughan-Nichols is editor of Practical Technology (www.practical-tech.com) and has worked as a programmer for NASA and the Dept. of Defense.

REDMOND AND THE STORAGE UNICORN

With the economy in the dumpster and the Internet no longer the shiny e-commerce jewel it once was, media mavens and captains of IT industry have fastened onto two new technologies as industry hot buttons for the coming year: wireless networking and enterprise storage. While I could expound on my giant double take when I recently saw Microsoft-branded 802.11b hardware at my local geek superstore, I don't think that's nearly as interesting as Redmond's new devotions to the storage gods.

Actually, one could take issue with the word "new." Microsoft's Server Appliance Kit (SAK) is already moving up on its second birthday, and vendors that used its early iterations to build network-attached storage (NAS) devices snagged around 25 percent of that market late in 2001, according to IDC. But that was just a teaser. Never one to be left out of a hot segment of the industry, Microsoft has turned its full attention to combining enterprise storage with Web services and .NET.

Toward this end, we'll be seeing an updated version of SAK in early 2003, which will enhance the storage technology within .NET Server 2003 and also provide middleware and dedicated storage APIs for third-party developers.

The big news here revolves mainly around two new technologies: Volume Shadow Copy Service (VSS) and Virtual Disk Service (VDS). VSS will allow users to build snapshot copies of application data for heavyweight .NET services, such as Exchange 2000/.NET or SQL Server. VSS will even have internal hooks so that vendors that already sell similar software can use VSS to improve their own offerings. Similarly, VDS is composed of APIs to allow software developers to manage virtual storage at the block level from inside Windows .NET Server.

WINDOWS & .NET WATCH

OLIVER RIST

And that's just the good news for third-party developers. .NET Server 2003 will receive a number of new storage-oriented enhancements as well, with an eye toward both users and software partners. Better support for Fibre Channel storage area networks (SANs), iSCSI support, automated system recovery and serious performance boosts for its Distributed File System (DFS) are just a few of the goodies that Redmond intends to place into .NET Server 2003 early that same year.

No question this is a good thing for .NET Server 2003 users—whoever these folks are. But what does it mean for the storage industry? In speaking with several users and storage-oriented vendors at a recent IT conference sponsored by, ironically, Oracle, I tasted the distinct flavor of suspicious ambivalence. It seems a few of us have been someplace like this before. Microsoft enters a new technology arena, bringing with it an updated version of its operating system. At the same time, Redmond announces its intention to only "support" the new technology while leaving plenty of room for third-party players. Fast forward a few months and Microsoft is busily and successfully competing with the same players it was previously supporting.

Plenty of folks seem to think we're looking at the same scenario with storage. Nobody likes the idea of Microsoft controlling enterprise storage technology at the operating-system level. According to such naysayers, that puts companies like EMC at a serious disadvantage and could leave the rest of us dealing with storage technology that's (gasp!) proprietary to Microsoft.

But allow me to disagree. First off, the notion of Redmond moving toward enterprise storage should come as no surprise. Anyone paying attention should have seen that one coming the first time Microsoft announced Windows 2000 Data Center. With that in mind, storage vendors have had roughly three years to move the technology forward on their own, but aside from some intervendor standards announcements, like CIM and Bluefin, enterprise storage is still primarily relegated to large third-party hardware and software vendors selling advanced functionality only on expensive closed systems.

Microsoft's entry is going to shake that model to the core, and frankly that can spell only good news, both for smaller development shops and for users. The only area where it will probably have an adverse effect is in the quest for a true platform-neutral storage resource solution—the "real" SAN, for lack of a better term. But despite various vendors announcing plans for just such a product, seeing one without some kind of vendor platform or client-side catch is about as likely as my next tee shot slicing into a unicorn's noggin.

SAK 3.0 and .NET Server 2003 may put that particular storage fairy tale in jeopardy, but it will do wonders in giving users and smaller dev shops the ability to push advanced storage management to the masses. And if that happens to raise the innovation bar for heavyweights like EMC, Sun and Veritas, well, that's fine by me, too. ▮

Oliver Rist is a freelance technology journalist and president of FB2 Corp., a New York-based software manufacturer.

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Microsoft Tablet PC and SDK

New 'cool' computing experience creates opportunities for imaginative development teams

BY LARRY O'BRIEN

First comes a full-fledged geek-out. There are people who react viscerally to sports cars, to military equipment and, I suppose, to quilts. A Tablet PC, though, is an arrow aimed straight for the heart of those for whom computing is a central preoccupation of their lives. Until we get holodecks, or at least that gesture interface shown in "Minority Report," a flat and light device with wireless network access and a form-factor approximating a pad of paper will be the most desirable computer available.

Admittedly, a desk whose top was, say, a 25 megapixel digital ink surface might be cool, too, but the point is that the Tablet PC feels like such a leap into the future. Like the personal computer, the Tablet PC is an epochal step forward for computing, a new type of device that opens up a whole family of new applications and possibilities.

But then, inevitably, the geek-out fades and one has in hand a device whose value lies more in its promise than its out-of-the-box experience. Fortunately, as a programmer one has the ability to help bring about that promise, and of all its aspects, the programming API for the Tablet PC is among its strongest points.

For the past few weeks I have been using an Acer TravelMate C100 running Microsoft's Windows XP Tablet PC Edition, and programming it with the Tablet PC SDK freely downloadable from Microsoft's Tablet PC home page (www.microsoft.com/tabletpc).

The TravelMate is what is referred to as a "convertible"—a 3-pound "ultraportable" laptop whose screen can be pivoted, laid down and locked down to create the tablet form. While convertibles necessarily require some amount of space for the pivoting hinge, I believe that almost any user will find the ability to switch to keyboard and touchpad input crucial for practical use.

The enduring lesson learned from using a Tablet PC for even a few days is that one cannot simply substitute the pen for the keyboard and pointer and have the same efficiency; the two modes of interaction are dramatically different. Even Web surfing, which is generally a joy when the Tablet PC is switched to portrait mode, can be slowed when one has to enter a URL with the pen.

To be sure, the Tablet Edition of XP does contain an input panel that allows one to enter data with either handwriting or with a virtual keyboard, but the QWERTY layout is lamentably poor for pen-pecking (think about how far the pen has to travel to input ".com"), and the panel does not support efficient alternate layouts, such as FITALY. Handwriting recognition traditionally has been the biggest stumbling point for small devices, and there has been out-of-the-gate criticism of the Tablet PC's performance in this area. My experience has been different, and I've been very favorably surprised by how well the recognition works on my handwriting, to which I would never subject a human being. The quality of the recognition is very dependent on the behind-the-scenes dictionary and a hidden Markov model (or other context-sensitive probabilistic technique): The input panel does a detestable job when it comes to interpreting source code. Surprisingly, the recognizer seems to work better on my cursive than my block handwriting. Unlike with voice dictation, I am confident that handwritten input will be recognized at a worthwhile level: This is a crucial comfort level for the technology.

The TravelMate C100's screen can lie flat, making the PC into a tablet.

Part of the specification for the Tablet PC is that machines must use a stylus that is not pressure-based, has a minimum resolution of at least five times the display resolution and 600dpi, updates more than 100 times per second, and locates the display cursor within 3mm of the stylus's contact point on the display. The resulting on-screen experience is very good, and ink strokes are noticeably subtler than what one gets on a handheld.

The antiglare surface of the TravelMate gives a reasonable pen-on-paper texture, which also aids precision.

My only complaint about the TravelMate is that the screen (10 3/8 inches diagonally) and keyboard are too small for me to consider it as a possible desktop replacement machine. As a traveling machine, though, it has an awesome battery life (three hours, no kidding) and comes with a spare battery.

As far as performance goes, the only time I saw its 800MHz P3M unable to keep up with pen movement was when simultaneously running Windows MediaEncoder's screen capture.

The reason I was capturing screen movies is because I wanted to see how easy it is to program the Tablet PC with C#. Yes, you can program Tablet PC with unmanaged code, but there is little reason to do so; the only thing impossible from managed code is supplementing Microsoft's "gestures" (stroke sequences that are recognized as conveying semantic meaning, e.g., a quick back-and-forth scribble is a "delete" gesture). Since Microsoft provides many basic gestures, and an application-specific recognizer can be written in managed code, this is not a significant practical limitation.

Pen-based user interfaces are challenging to design. The pen can be used in three ways: as a pointer and mouse substitute, as a text-input device, and as a generator of Ink objects and gestures. Nothing special need be done to exploit its mouselike mode. The Dasher Project (www.inference.phy.cam.ac.uk/dasher/) and SketchUp (www.sketchup.com) are good examples of pen interfaces in this style, and both predate the Tablet PC.

The Tablet PC SDK includes a single assembly, Microsoft.Ink.dll, which exposes two components that allow you to take advantage of the other modes. The InkEdit control is very similar to the .NET Base Class Library's TextEdit control. It accepts pen input and, after a programmer-configurable pause, it recognizes the input according to programmer-defined "factoids" that bias the recognizer toward, for instance, the input of digits as opposed to letters (so that a circle will be recognized as a zero instead of the letter O). InkEdit's field needs to be large enough to accept handwriting, and one quickly sees that a design with a single TextInput area may be superior to field-by-field entry.

The other component in the assembly is InkPicture. This control can be set to accept either "raw" Ink, in which case it is essentially a drawing surface, or it can be set to recognize gestures, the aforementioned pen-generated commands. Since Windows Forms allows for layering components on top of other components, nonrectangular windows and so forth, the InkPicture control is likely to be the powerhouse of developing Tablet PC applications. It is extremely simple to program, although the full data of the raw ink is available for those programmers who want to take a crack at custom pattern recognition. The reason that I was running the aforementioned Windows Media Encoder was to capture proof of how easy it is to program these controls: You can see the movies at www.thinkingin.net.

This, perhaps, is the single most compelling feature of the Tablet PC: The tablet is such a radically different computing experience, where the attention of the user is not necessarily focused down into the clamshell of keyboard and screen, that as a programmer one begins envisioning new applications.

The Tablet PC creates new business opportunities for any development team with imagination.

And, oh yeah, did I mention how cool it is? ▮

Larry O'Brien is an independent software consultant, the founding editor of Software Development magazine, and the author of "Thinking in C#," available in bookstores in January or for digital download from www.thinkingin.net.

GOOD GOVERNANCE

People who spend their time pondering the "next big thing" often do not make good business people. One is about abstraction, the other minute detail. Few people I've come across in this life do both well…with the exception of my employers here at SD Times, who are two of the most well-rounded individuals it has been my pleasure to know. (Did someone say "end-of-year bonus"?)

However, BZ Media, which publishes SD Times, is a small, privately held company, and therefore the business is relatively uncomplicated. Life is a lot more complex for those technologists looking to raise venture capital to go into business: What they don't know about things such as corporate governance, financial reporting and accounting practices can quickly bury them in the opening created by their big idea.

INDUSTRY WATCH

DAVID RUBINSTEIN

No longer is it good enough to show proof of concept; you must now show how you were incorporated, who your prospective board members are, and a paper trail of how the company had been run up to the point of the VC meeting.

Prior to Enron, WorldCom and Arthur Anderson, start-ups had been spared from this kind of once-over from capital groups. Now, their answers can be the difference between getting the operation funded and growing or staying very small.

To help start-ups meet basic governance standards, the VC group Telecommunications Development Fund (TDF), in conjunction with the National Association of Corporate Directors and other like-minded organizations, has created a virtual classroom in which small, private companies can learn about issues critical to running a business.

"There are great programs at Stanford and Wharton," according to Ginger Lew, TDF's CEO, "but most start-ups can't afford them. We had attended a number of seminars that all seemed geared toward publicly traded companies, with nothing geared toward first-time entrepreneurs."

The classic start-up story involves a couple of engineers, someone's garage or basement and money from Grandpa, Aunt Lucy or a group of buddies who hit pay dirt with their own start-ups (the last part of this scenario, of course, predates the dot-com implosion). After working on the project for a year or two, the engineers decide the project is ready to go to market, and they decide to seek venture capital to bring on sales teams, marketing people and to finally pay themselves. Prior to the implosion, this was good enough to get funded. Now, it's critical they know something about how to run their business as well.

"They shouldn't be casual with the family's money, but they don't need a real structure," Lew advised. "It's when they start to seek outside investors that they need to start paying attention to these details. How someone runs his company is a good indicator of how he'll follow a business plan. Paying attention to the governance side shows he'll be disciplined to meet his business milestones."

When a small company is ready to seek funding, it needs to show minutes of its board meetings along with the financials. Entrepreneurs also must understand that Grandpa and Aunt Lucy most likely will need to yield their seats on the board to more professional people with Rolodexes. "They'll have the contacts in the industry; they'll know how to grow the product, how to market the product, and can provide introductions to potential business partners."

The online class shows, among other things, how to recruit board members and how to work with a board, and gives information on other groups that espouse sound corporate governance practices. There also is an extensive glossary of terms that entrepreneurs should know and understand.

Lew insisted that venture funds are sitting on a lot of money and still are aggressively seeking situations in which to invest. "They're looking for growth and sustainability," and since the IPO market dried up when the market went south, there is one less exit path for a VC to recoup its investment. Now, VCs will look to see if a company is sellable, or if it has the strength to be a stand-alone company: "Revenue and commercial viability now are so important," she said.

Many VC firms are "working with their current portfolios," Lew said—a lovely euphemism for cutting their losses and covering their rears.

WANG OUT, BUT HEAT STILL ON

One company whose executives seemed to cut the governance class, Computer Associates, is back in the hot seat, even as co-founder Charles Wang rides off into the sunset. Recent lawsuits by admittedly disgruntled former employees indicate the company had a pattern of reporting earnings improperly. The company says to take it for what it's worth—a group of angry ex-workers who are seeking to strengthen their hands for pending lawsuits against CA.

The company insists it has reported its revenue correctly, and that it is continuing to work with U.S. Department of Justice and the Securities and Exchange Commission investigators.

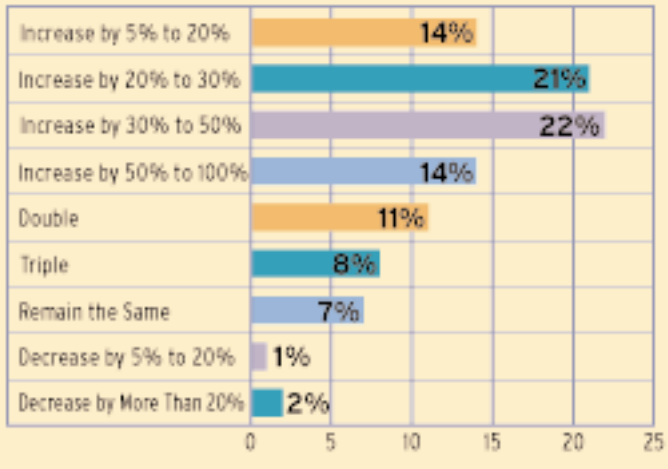
Perhaps new chairman Sanjay Kumar can learn from Wang's biggest shortcoming—that the appearance of impropriety is almost as bad as impropriety itself.

Early indications, though, are that Kumar plans to follow the same road that Wang started down. This continued blind adherence to questionable practices will not be good for the company or its investors. ■

David Rubinstein is executive editor of SD Times.

DATA WATCH

Under the Microsoft Licensing Plan 6.0, Do You Estimate Upgrade Costs Will...



Source: "Microsoft Licensing: Pay Now or Pay More Later," October 2002, Sunbelt Software Inc. and the Yankee Group www.yankeegroup.com

Microsoft's new Licensing Program 6.0 is now in effect, and contrary to what may be the popular perception, most corporate customers did not upgrade by the deadline, writes Yankee Group analyst Laura DiDio.

The Microsoft Licensing Program 6.0 favors corporations that purchase in high volume and those that regularly upgrade every two to three years. Businesses that upgrade less frequently and are not on the most current version of Microsoft software can expect to pay significantly higher premiums.

Depending on how far behind they are on their current product offerings, organizations could find their software costs rising by anywhere from 20 percent to 100 percent.

The study of 1,500 IT professionals also found that only 22 percent understand the terms of the new Licensing Program 6.0, while 24 percent didn't understand it, and 45 percent have only a partial understanding.

BUSINESS BRIEFS

Component technology provider **Flashline Inc.** has raised an additional $5 million in venture capital, bringing the total amount of financing the company has secured to $11 million. The lead investor was **Adams Capital Management Inc.**, which was the sole investor in Flashline's previous round of funding. The company has indicated it will use the funds to pursue a growth strategy and increase research and development . . . Java application server vendor **BEA Systems Inc.** has reported revenues of $234 million for its third quarter ended Oct. 31, an increase of roughly 7 percent over Q3 2001 revenues of $219.6 million. However, for the nine months ended Oct. 31, 2002, revenues of $684.7 million were lower than the $744.5 million generated for the nine months ended Oct. 31, 2001. The company reported pro forma income of $40.4 million, a 31 percent improvement over the same period last year, when income was $30.9 million . . . Change management company **Serena Software Inc.** reported third-quarter revenues of $24.6 million, an increase over the $23.2 million reported for the same quarter last year. Total revenue and gross profit, $69.6 million and $59.8 million respectively, were down for the nine months ended Oct. 31 as compared with 2001 numbers, $74.1 million and $64.1 million respectively, for the same period. The company reported that excluding amortization and a one-time restructuring charge, third-quarter net income was $7.3 million or 18 cents per share, up from $6.8 million or 17 cents per share from the prior year. ■

CALENDAR OF EVENTS

MacWorld Conference & Expo Jan. 6–10
San Francisco
IDG WORLD EXPO
www.macworldexpo.com

Oracle AppsWorld Jan. 19–22
San Diego
ORACLE CORP.
www.oracle.com/appsworld/sandiego

LinuxWorld Conference & Expo Jan. 21–24
New York
IDG WORLD EXPO
www.linuxworldexpo.com/linuxworldexpo/v31/index.cvn

Integrate 2003 Jan. 28–29
Burlingame, Calif.
OBJECT MANAGEMENT GROUP INC.
www.integrate2003.com

Wall Street On Java Technology Feb. 4–5
New York
LIGHTHOUSE PARTNERS INC.
& FLAGG MANAGEMENT INC.
www.javaonwallstreet.com

VSLive Feb. 9–14
San Francisco
FAWCETTE TECHNICAL PUBLICATIONS
www.vslive.com/2003/sf

For a more complete calendar of U.S. software development events, see www.bzmedia.com/calendar.

Information is subject to change. Send news about upcoming events to events@bzmedia.com.

DEVELOPERWORKS

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1] WIN WITH SMART THINKING: Software development is about solving problems. Many of those challenges have already been met. There's a place where you can find what you need so you don't have to reinvent the wheel.

2] WIN WITH DEVELOPERWORKS: developerWorks™ is the one place to find everything to simplify developing. It's filled with free trial code, tips, tools, and tutorials for Java,™ XML, Linux,® open source, Web services... you name it. It's the way to save yourself time – and brainpower.

3] MAKE THE PLAY: Head to **ibm.com**/developerWorks/toolbox/code and register for the developerWorks Toolbox subscription. It's your key to hundreds of free tools and software products from IBM.

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